TECHNOLOGY DEPT.

March 20, 1940

NATIONAL PETROLEUM NEWS

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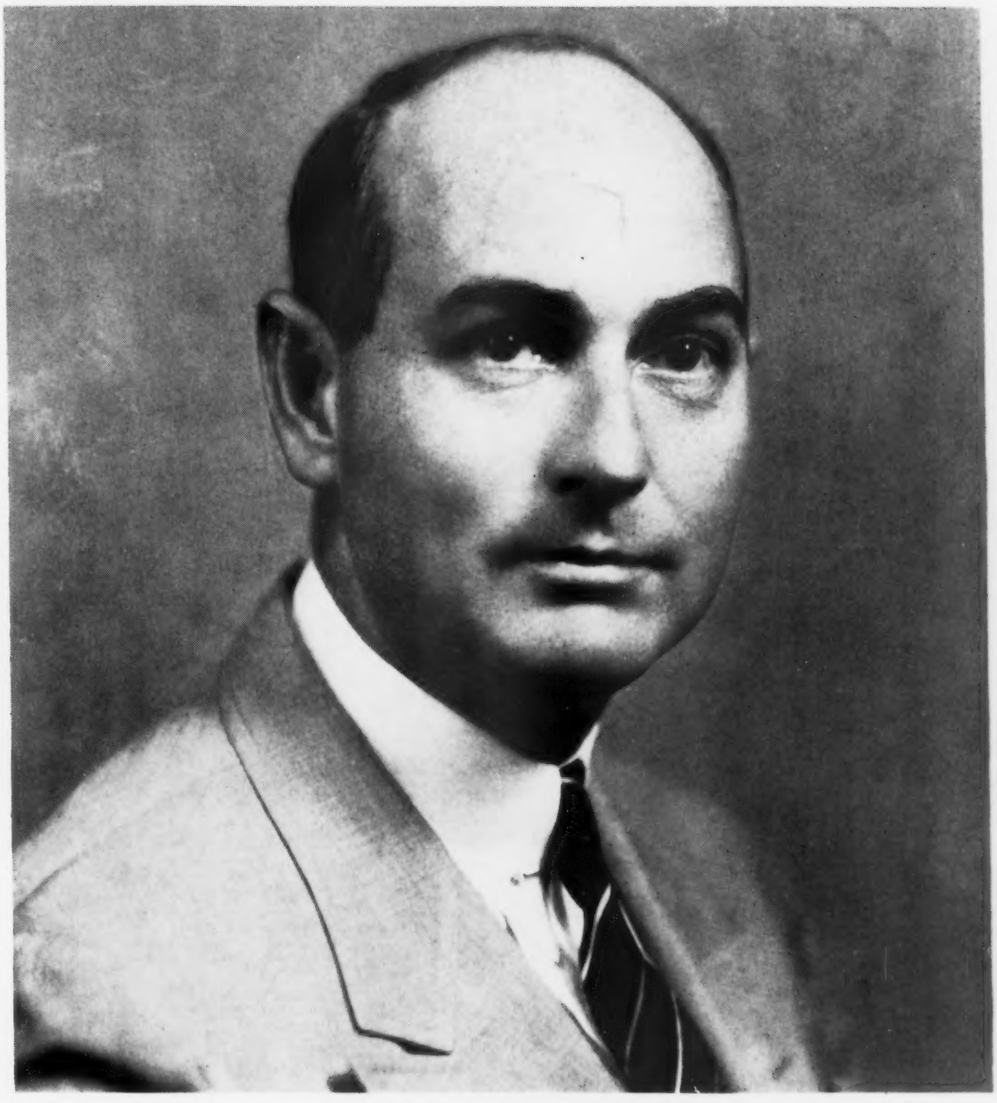

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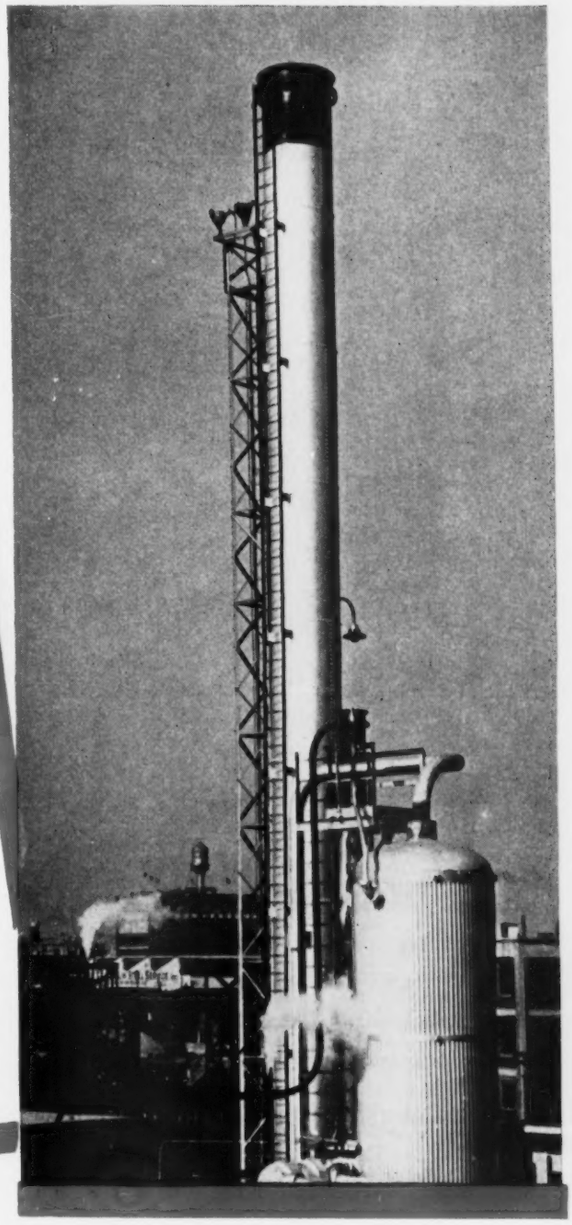

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'Big Three' of Iowa Association

A. C. Gienapp Leland L. Harms Gerhard Goplerud

● "Big Three" of the Iowa Independent Oil Jobbers Assn. for the coming year are, left to right, Al. C. Gienapp, Manchester, Ia., secretary, Leland L. Harms, Allison, Ia., of Harms Oil Co., newly-elected president, and Gerhard Goplerud, Osage, Ia., of Goplerud Oil Co., retiring president who was elected vice president.

Besides his gasoline and oil business, Mr. Harms is also a distributor of "bottled gas". He has a separate bulk plant for bottling liquefied gas which he distributes to dealers and consumers over a wide area, with a showroom in Allison for sale of stoves, water heaters, refrigerators and other appliances using liquefied gas. He markets the "bottled gas" under his own brand name—"All-Gas". Entering the gasoline and oil business in 1931, he has handled the branded products of one major company since that date, serving 30 dealers from his two bulk plants.

Mr. Goplerud has been in the oil business since 1925 (See Frontispiece, NPN, June 28, 1939).

With more than 20 years' background in the oil industry, Mr. Gienapp has taken an active part in state matters affecting the oil industry and has several times journeyed to Washington to represent independent marketers at congressional hearings.

NATIONAL PETROLEUM NEWS

VOLUME 32 WEDNESDAY, MARCH 20, 1940 NUMBER 12

Gasoline Demand Rises 7% In January, Fuel Oil 34%

N. P. N. News Bureau

WASHINGTON, March 18.—Despite the coldest weather in years, domestic demand for motor fuel in January totaled 40,370,000 bbls., Bureau of Mines reports, 7% above January, 1939, demand and 870,000 bbls. above the Bureau's forecast for the month.

Further reflecting cold weather demand for heating oil, gasoline yield fell to 42.9% in January, compared with 45% in December and 44.8% in January, 1939. Gas oil and distillate fuel yield rose from 13.6% in December to 15.5% in January, residual fuel from 25.5% to 26.4%.

Domestic demand for fuel oils was "sensational," Bureau reports, kerosine being 31% above last year, gas oil and distillate fuel up 34% and residual fuel oil up 13%.

However, in spite of the decline in yield and the increase in demand, gasoline stocks rose about 7,500,000 bbls. in finished grades and another half million in unfinished, totaling 90,975,000 bbls. or about 11,500,000 bbls. more than on hand a year ago. Gasoline exports continued to drop and were off 37% from a year ago to 2,274,000 bbls.

Crude Output Drops

Crude production continued to decline in January, daily average output being 3,649,700 bbls., 53,800 bbls. below the December average and 80,000 bbls. above the Bureau's forecast. Output declined in almost every state during January except in Illinois, Louisiana and Mississippi. Daily production in Illinois rose about 25,000 bbls. over December to a new peak of 371,000 bbls. in January. Illinois production of 11,500,000 bbls. in January compares with 13,142,000 bbls. produced in Oklahoma and 42,438,000 bbls. in Texas.

Russia Got No Aviation 'Gas' From Here, U. S. Figures Show

N. P. N. News Bureau

WASHINGTON, March 18.—Despite all the hullaballoo about the U. S. supplying Russia with aviation gasoline for its planes which were bombing Finnish cities, not a gallon of American-made aviation gasoline was exported to Russia during the 13 months ended January, 1940.

Russia received 884,000 bbls. of gasoline from the U. S. during 1939 and 75,000 bbls. in January this year, but none of it was aviation "gas", according to official government figures.

During 1939 a total of 1,197,000 bbls of gasoline was shipped from the U.S. to Japan, of which 562,000 bbls. was aviation gasoline; in January, the total was 120,000 bbls., with 24,000 bbls. of it, aviation gasoline.

U. S. State Department has not included aviation gasoline in its "moral embargo" against aggressor nations bombing open cities and towns. But it has banned commercial aircraft, parts, etc., as well as equipment and plans for making aviation gasoline.

Plane Makers Seek 'Gas' Ban

West Coast plane manufacturers got the idea of pressing for a "moral embargo" on aviation gasoline and motor vehicles as a lever to pry off the ban on plane shipments. But they dropped this plan after the State Department made it clear that ending of the Russo-Finnish war would not mean lifting of the "moral embargo."

Inquiry at the State Department today developed the information that lifting of the ban against commercial planes was most unlikely and also that the department does not view shipment of aviation gasoline to Japan as violative of the spirit or express intent of the present "moral embargo." Officials conceded, however, that under any extension of the "embargo" in the future, aviation gasoline would be among items which would be first included.

The attitude of the manufacturers of commercial airplanes, as explained at the offices of the Aeronautical Chamber of Commerce here, is that Japan is buying no luxury goods in the U. S. now, only war materiel, and that aviation gasoline, motor trucks, etc. should be treated the same as airplanes, that is, war supplies.

Auto Sales in February Rise 32% Above 1939

DETROIT, March 16. — Factory sales of passenger cars and trucks totaled 421,690 units in February, 32.8% higher than February of last year, according to estimates of the Automobile Manufacturers Ass'n.

Retail sales of cars and trucks during January totaled 285,789 units, a gain of 31.2% over the same month last year.

Factory sales for the first two months of 1940 are estimated at 871,004 units, exceeding comparable periods of all other years, except 1929. January, 1940, factory sales were the best in history for that month.

Favors Travel Bill

By Teletype

WASHINGTON—Senate Commerce Committee today reported favorably to the Senate a House approved bill (HR-6884) to establish a "See America First" travel bureau in Interior Department with a fund of $100,000.

Illinois Production Hits 456,800 Bbls., Displaces Oklahoma

N. P. N. News Bureau

NEW YORK, March 19.—Illinois has become the nation's third-ranking oil producing state, displacing Oklahoma.

Production in Illinois jumped 44,100 bbls. to a new high of 456,800 bbls. during the week ended March 16, American Petroleum Institute reported today. Meanwhile, Oklahoma's daily output dropped 10,950 bbls. to 407,850 bbls.

Less than 3 years ago, Illinois was producing only 15,000 bbls daily.

Total U. S. crude production last week was 3,890,050 bbls. daily, up 61,500 bbls. from the week previous.

W.P.R.A. Sees Gains in 1940 In Oil Review

N. P. N. News Bureau

TULSA, March 18.—Total demand for gasoline manufactured in the U. S. in 1940 will be approximately 620,000,000 bbls. according to a statistical forecast of the Western Petroleum Refiners Ass'n. Total domestic and foreign demand for motor fuel in 1339 was 597,116,000 bbls.

The forecast estimates domestic automotive consumption at 507,000,000 bbls., domestic industrial consumption at 68,000,000 bbls. and exports at 45,000,000 bbls.

The association had forecast 1939 domestic demand for gasoline at 532,000,000 bbls., while actual domestic consumption amounted to 552,557,000 bbls.

"Previous experience indicates," the W.P.R.A. forecast states, "that Mid-Continent refiners will ship 21.6% of the total domestic and export demand, indicating total Mid-Continent estimated shipments would be 124,640,000 bbls. for 1940."

The forecast was issued in conjunction with a comprehensive statistical analysis of petroleum production and consumption for 1939.

Oklahoma Crude Output Cut

Oklahoma crude production in 1939 was 8.5% less than in 1938, and 3.6% less than the Bureau of Mines' recommendations. Kansas had a 1.9% increase over 1938 and 4.3% over Bureau of Mines. Texas also had a 1.9% gain with 5.4% under the Bureau's estimate. Louisiana was 1.0% under 1938, and 0.1% under the Bureau, while Arkansas was 17% above 1938 in output and 9.7% above the Bureau's recommendation

Crude runs to stills in the Mid-Continent area were 0.3% above 1938, while the U. S. average was 6.2% higher than the previous year.

Gasoline shipments from Mid-Continent refineries in 1939 were 0.92% under 1938, and stocks held by those refineries increased 9.34%. In 1938 stocks had decreased 0.99%, while shipments increased 4%. For the nation as a whole, gasoline stocks increased 15.6%, while shipments increased 4.19% during 1939.

Price-Sign Law Is Voided, Hartford Dealers Fear 'War'

HARTFORD, Conn., March 18.—Gasoline dealers in Hartford fear a serious price war will follow the Connecticut Supreme Court's decision in invalidating the state price-cost ing law, Rocco D. Pallotti of the newly-formed Greater Hartford Gasoline Dealers Assn. said today.

The association held a mass meeting here March 17 to formulate plans to avoid the unsettled conditions that existed before the law went into effect in 1939, and to seek cooperation from the Chamber of Commerce in putting to a stop gasoline sales by factories and insurance offices to their employes at little more than cost.

Mr. Pallotti explained that before the law was passed in 1939, the retail gasoline business in Hartford was a "dog-eat-dog affair." The association is fighting to prevent a re-occurence, now that restrictions on price signs have been removed, he said.

Dealers who attended the meeting, according to Mr. Pallotti agreed to display their price postings "just as though the law were still in effect," and to urge dealers who did not attend the meeting to co-operate with them.

Another thorn in the dealers' side is the practice of factories and insurance offices in Hartford selling gasoline to their employes (and their friends), from 2c to 2.5c below the posted retail price, Mr. Pallotti said.

It was estimated that Hartford dealers are losing from 10,000 to 15,000 gallons of business each day to this source.

Senate Committee Favors Passage of Waterways Bill

By Teletype

WASHINGTON—Senate Commerce Committee is unanimously agreed that Congress should pass legislation authorizing a reasonable rivers and harbors improvement program at this session notwithstanding notice from President Roosevelt of his intention to veto such measures now because of the budget situation, it was learned here today.

TNEC To Schedule 'Rebuttal Testimony'

N. P. N. News Bureau

WASHINGTON, March 18. — Temporary National Economic Committee will hold open hearings during May and June to afford interested parties a final opportunity to present material relating to any subject touched upon in previous hearings.

Parties interested have until April 15 to request time to appear before the Committee.

TNEC Oil Hearings To Be Printed Soon

N. P. N. News Bureau

WASHINGTON, March 18. — Testimony at oil industry hearings before the Temporary National Economic (Monopoly) Committee will be off the press at the Government Printing Office within the next 3 or 4 weeks. They will run from four to six volumes and probably will cost under 75c per volume.

Dealer Problems Will Be Discussed At N.A.P.R. Board Meeting, April 9-10

MILWAUKEE, March 18.—A board meeting of the National Association of Petroleum Retailers will be held here at Hotel Schroeder, April 9-10, Carl G. Hodges, executive secretary, announces.

Committees for the annual convention, to be held in Houston in September, will be appointed at this time. Time will also be given for discussion of any problems raised by members attending the meeting.

Results of Dealer Poll Given

Results of a recent poll by the N.A.P.R. among its members on several policy questions may also be taken up at the board meeting, Mr. Hodges said.

One of the questions asked station operators if they were satisfied with their lease, 28% answered yes, 4% yes and no, and 68% answered no. Another question asked what length lease was preferred, 12% answered 1 year, 62½% 2 years and 26% answered 5 years.

A third question asked station operators was if they would be willing to pay 1% of the cost of providing their customers with credit cards, 90% said no and 10% answered yes.

Still another question was: Do you favor the setting of a price on anti-freeze and packaged oil; 77% answered yes, while only 13% were opposed.

Reprints Available

Build sales by using reprints of the articles on Spring Change-Over. The fifth in this series of sales boosters appears on page 27 of this week's NPN.

Special prices on reprints of this article in quantities of 100 and more will be furnished on request.

Address:

National Petroleum News, 530 Penton Bldg., Cleveland, Ohio.

Charles Jones Again Heads Philadelphia Oil Trade

PHILADELPHIA, March 16. —Charles D. Jones was again elected president of the Oil Trade Assn. of Philadelphia at annual meeting here March 15.

Other officers re-elected were: C. A. Borda, vice-president; Howard M. Rogers, Chas. K. Smith Co., secretary; and James H. Stevenson, Stevenson Bros. & Co., treasurer.

Directors of the association who were re-elected are: Joseph J. Mulvey, Atlantic Refining Co.; F. M. Sanderson, Squier & Sanderson Co.; J. Rodman McCoy, Quaker City Iron Works; W. F. Fancourt, Jr., W. F. Fancourt & Co.; Otto A. C. Hagen, Otto A. C. Hagen Co.; Lucius Beebe, Troco Lubricating Co. and Charles Molyneux, The Molyneux Co.

Transportation Bill Will Exempt Tankers

N. P. N. News Bureau

WASHINGTON, March 19.—Most important oil industry angle of the omnibus transportation bill has apparently been taken care of in the conferences between the House and Senate on this legislation to bring all forms of transportation under Interstate Commerce Commission control.

The exemption in the House version for bulk movement of liquids on waterways (including tankers and barges) was accepted for inclusion in the bill being written in conference. Fate of a provision, subjecting pipelines to same regulations as railroads regarding financing operations, was still uncertain.

With President Roosevelt asking its enactment at this session, there is a titanic struggle going on behind scenes, with much high-pressure lobbying reported on behalf of railroads and water carriers.

NPN's Log

On Oil Legislation

Congress

S 3501 O'Mahoney (Wyo.) and Hayden (Ariz.)
Providing that 52.5% of any money collected from Standard Oil Co. of Calif. in connection with the Elk Hills case be transferred to the Reclamation fund. (Fine and reparation in excess of $6,000,000 was asked by the trial court in the case.)

S. Res. 245 Nye, N. D.
Authorizing a Senate investigation to determine whether there is a monopoly in "the control of production, transportation, sale or distribution of natural gas and petroleum." Judiciary Committee.

State Bills

Mississippi

H-600, Wolfe.
Exempts from taxation, binder material used on highways; imposes privilege tax on refiners and processors; To Ways and Means Committee.

H-566, Smith.
Excise tax on lube oil. To Ways and Means Committee.

S-1750 and S-1751, Dunnigan.
Suspends state aid to county roads. To Finance Committee.

Changed Status

Kentucky

H-399, Hunnicutt.
$1 gasoline pump tax. Tabled in House.

Mississippi

H-173, Ethridge et al.
Refund of gasoline tax to municipalities. Reported unfavorably in House.

New York

A-794, Same as S-664 by Bewley.
Secret returns for motor fuel, milk and cigarette taxes. Amended in Senate.

A-640, Budget Bill, same as S-580.
Continues for one year emergency taxes, including the two 1c per gallon taxes on motor fuel. Approved by Governor.

Virginia

HJR-39, Warren.
Sets up gas and oil commission to make inquiry into method of drilling, and leases. Passed by Senate.

S-163, Walter.
Calibration and marking of receptacles used in transporting motor fuel over public roads and waterways, with certain exceptions. Killed in House.

S-245, Battle et al.
Allows refund of tax on motor fuel sold in the state and exported. Regulates and licenses common and contract carriers. Passed House.

Socony Reduces Tankcar

NEW YORK, March 15.—Socony-Vacuum Oil Co., Inc. effective March 14, has reduced its tank car prices for "all grades of automotive gasoline 0.5c per gallon" throughout New York and New England, with the exception of western New York state, according to a company announcement.

D. C. Tax Receipts Rise

N. P. N. News Bureau

WASHINGTON, March 16. — January gasoline tax collections in District of Columbia amounted to $220,371, a 6.7% increase over January, 1939.

Backdoor Move to Rule Oil Seen in Natural Gas Case

N. P. N. News Bureau

WASHINGTON, March 16. — Possibility of the Federal Power Commission reaching after control of petroleum production under guise of regulatig the natural gas industry, was pointed out here this week by spokesmen for two oil producers' organizations.

Issue is involved in refusal of the power commission to approve rates for the sale of natural gas as proposed by Columbian Fuel Corp.'s contract with the Warfield Natural Gas Co.

Determination of the case, as contended for by power commission attorneys, would threaten a great part of the petroleum industry with "a form of control more drastic than that proposed in the so-called 'Cole Oil Control Bill'," according to Russell B. Brown, general counsel for Independent Petroleum Assn. of America.

Gas Is By-Product

If the production of the gas, an incidental by-product of petroleum production, "is regulated through restrictions or its sale under the pretense that it is a public utility, then the production of the primary material —the petroleum—is equally affected," Mr. Brown said.

"If the industry is not permitted to sell its gas except in accordance with regulations of the Federal Power Commission which may determine the price paid for that gas and after making available its records and books and compiling the innumerable reports which might be demanded, then some producers are likely to believe that to burn the gas in the field or blow it off into the air would be the lesser of two evids," Mr. Brown argues.

The I.P.A.A. and the Mid-Continent Oil and Gas Assn. both have been permitted to file briefs with the FPC as "friend of the court" to discuss their interpretation of the language of the Federal natural gas act.

'Would Destroy Conservation'

Extension of FPC control over a portion of the petroleum industry, Mr. Brown believes, "would destroy part of our conservation program and might actually encourage wasteful practices which the industry has spent vast sums in correcting."

The I.P.A.A. attorney pointed out that while the Cole Bill would regulate petroleum production under the theory of waste prevention, the FPC approach—which may affect all wells from which gas as well as oil is produced—does *not* take into consideration conservation or waste prevention but deals solely with regulation as a public utility. "Even the flimsy standards set up in the Federal Oil Control bill would be lacking in this new form of government regulation," Brown declared.

The threat which the case holds over the petroleum industry via the backdoor route would undoubtedly go to the U. S. Supreme Court for final answer. Meanwhile, observers see in this instance a repetition of the bureaucratic process whereby federal power is extended over matters not within the contemplation of those who framed the statute under which the government bureau claims authority.

Michigan Marketers Meet April 3 and 4

DETROIT, March 18.—Public relations, legislation, and operating problems will feature the program of the annual convention of the Michigan Petroleum Assn. to be held April 3 and 4 at the Detroit-Leland Hotel here.

H. H. Anderson, St. Louis, vice-president of Shell Oil Co., Inc., will speak April 3 on "Public Relations—This Means You." Title of a talk by J. D. Hadley, association secretary is "Frank Discussion of Possible Legislation."

"Problems of a Tax Administrator," will be outlined April 4 by Harold E. Bradshaw, director of Michigan Gasoline Tax Division. George C. Newton, Iron Mountain, Mich., of Lake States Oil Co., will speak on "Temperature Allowances." H. C. Conners, East Chicago, Ind., of Graver Tank and Manufacturing Co., will speak on "Modern Bulk Plant Conservation Methods." Harry F. Kelley, secretary of state, will also speak April 4.

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Trade Mark Registered U. S. Patent Office.

Published every Wednesday by The National Petroleum Publishing Co.
WARREN C. PLATT, *Editor and Publisher*
V. B. GUTHRIE, *Managing Editor*

Member of Audit Bureau of Circulation and Associated Business Papers, Inc.

Publication office: 1213 W. Third St., Cleveland, Ohio, U.S.A. Telephone, CHerry 7672. Cable Address, Plattoil, Cleveland

NEWS BUREAUS

New York, 50 W. 50th Street. Telephone, Columbus 5-1516 and 5-1517.
Chicago, Buckingham Bldg., 59 E. Van Buren Street. Telephone, Harrison 5901-2-3.
Washington, D. C., 1002 National Press Bldg., Telephone, NAtional 0654.
Tulsa, Okla., 904 World Bldg., Telephone, 3-7132.
Los Angeles, 610-A Hillstreet Bldg., 815 South Hill Street, Telephone, VAndike 2845.

Subscription rate $3 per year in United States and Mexico; $4 in Canada; $4.50 Foreign Countries. Current copies 10 cents, except special issues; back copies more than two months old 20 cents per copy.

Around THE MID-CONTINENT

. . . By ALLEN S. JAMES

Texas Political Pot Boils

Just as the greener grass and the bursting tree buds are a sign that spring has come to Texas, the buzzing of political rumors signals the approach of elections in that state.

The current hatch of rumors is hovering around the gubernatorial race. Of course Gov. W. Lee O'Daniel—who passed the flour barrel, the biscuits and all his opponents in the last race—will be passing around among the voters with a request that he be allowed to keep the job.

Col. Ernest O. Thompson, of the Texas Railroad Commission, who was runner-up to O'Daniel in the last race, is running again just as hard as he can.

Commissioner Jerry Sadler, of the same oil regulatory body, has announced he is after that governorship.

Harry Hines, Wichita Falls, Tex., oil man, also is in the race.

And Chairman Lon A. Smith of the commission, has been counted as one of the candidates in the race for the position he now holds.

Now comes the rumor that if Sadler does not get into the runoff, he will toss whatever support he gets to Hines, and perhaps vice versa. But it's only a rumor.

There's another rumor that when the last day for filing as a candidate comes around Col. Thompson will resign his railroad commission post so there will not be any finger-pointing at him as a candidate who is hanging on to a sure thing for another two years while running for another job. Sadler has a four-year stretch left on his commission job.

Finally, there's the rumor that Chairman Smith may cross up the boys and not run for reelection.

They're all rumors and early ones. There probably will be a new hatch along in May or June when things get still hotter.

* * *

Troops Not Needed

Gov. Leon C. Phillips of Oklahoma stood up and said right out in public last week that he had ordered the state national guard to the Grand River dam in Northeastern Oklahoma on "misinformation" and that there really had been no need for the officers to go to the dam site and order the work stopped.

The governor had ordered the national guard officers to stop work on the dam because he believed the state was not getting paid properly for the damage to roads and bridges that would result from filling of the huge lake to be created by damming Grand River. The national guard officers went to the site and had a talk with the superintendent and the engineer in charge of construction. Then an engineering professor from Oklahoma A. & M. College at Stillwater went over and made an investigation for the governor. He reported that construction could continue without the state being endangered in the immediate future.

So, Governor Phillips frankly admitted he had acted as he thought best, but on apparently unsound information, and that he since had learned there really had been no need to take the step he did.

* * *

Big Time Leasing Play On

There's a big leasing play on in Marshall and Bryan counties, in southern Oklahoma, as a result of the Pure Oil Co.'s wildcat test in the former county being brought in for a good producer the past week. But the leasing play isn't one in which the little fellow can do much more than watch from the sidelines. Royalties reported in the general vicinity of the discovery well are going at $350 an acre, while stuff two miles and more away is bringing a reportetd $50 to $60 an acre, according to Claude V. Barrow, *The Daily Oklahoman's* oil editor who has visited the site.

That's a real money play and since Pure has a big and almost solid block on top of the structure, it is the kind of play that can be handled only by those who can afford to gamble on the proposition without fear of losing everything.

And the drilling depth is one that calls for a sizable amount for a well, production having been found at approximately 5000 feet.

OIL TAX NEWS

Mississippi Suit Challenges 60° Correction and Shrinkage

JACKSON, Miss. — State tax collector, J. B. Gully, has filed suit against nine oil companies marketing in Mississippi which will test Mississippi's gasoline receipts tax law, and have the far-reaching effect of questioning the industry's custom of computing gasoline gallonage corrected to a temperature of 60° Fahrenheit. The suit involves an alleged $2,644,680.94 in back taxes.

Companies named as defendants were: American Oil Co., Arkansas Fuel Oil Co., Gulf Refining Co., Lion Oil Refining Co., Pan American Petroleum Corp., Shell Oil Co., Sinclair Refining Co., Standard Oil Co. of Kentucky and The Texas Co.

The Mississippi motor vehicle commissioner has been collecting gasoline taxes from the industry on the actual number of gallons received in the state, corrected to 60° F. with 2% deducted for losses due to evaporation and spillage, as stated by the law.

But the state tax collector disagrees. So he has filed suit based on these two contentions: First, that the method of computing gallonage on a 60° F. basis is "unfair" and second, that the 2% deduction allowed distributors to cover losses by evaporation and spillage is not arbitrary or irrevocable—contending that the oil companies should deduct only the actual, proved amount of their losses.

Should the tax collector prevail in this suit, tax statutes of other states which are based on gasoline receipts with certain deductions made for shrinkage and spillage losses, might be effected.

Case will come before the Chancery Court of the First District of Hinds County during the May term.

Display Gasoline Tax Poster

E. T. Coleman, secretary, (left) and R. L. Patterson, chairman, of Connecticut Petroleum Industries Committee, show one of the tax posters in the display at the recent annual meeting of the Connecticut P.I.C. Mr. Patterson is with City Oil & Coal Co., Torrington, Conn.

Trade Barrier Hearings Open Before TNEC

N. P. N. News Bureau

WASHINGTON, March 18.—The multiform subject of state trade barriers is receiving its first airing upon the national stage here this week with the opening of hearings before the Temporary National Economic (Monopoly) Committee.

Truck and bus operators will testify at the midweek as to the multiplicity of hindrances encountered in their operations across state lines ranging from port-of-entry requirements to load limits and a variety of inspection nuisances which bedevil interstate operators.

Presentation to the TNEC is in charge of Haskell Donoho, Department of Agriculture solicitor.

"Hundreds of trade barriers are today obstructing the free flow of commerce among the states," declared Frank Bane, Executive Director, Council of State Governments, Chicago, the first witness.

"Such measures, which in practice violate the spirit, if not the principle, underlying the commerce clause of the Constitution, are on the statute books of almost all the states. They are enforced generally under the state police and taxation powers, operate to benefit local producers and distributors, and tend to stimulate political and economic sectionalism."

Remedies Suggested

According to Mr. Bane there are ways in which to attack these barriers (1) court action, (2) Congressional action, (3) interstate co-operation and (4) Federal-State co-operation.

Secretary of Commerce Hopkins in a letter to Chairman O'Mahoney declared "the problem of interstate trade restrictions has grown to be a serious threat to the economic life and business well-being of our country. It has resulted in loss of business generally and in many cases has impaired the traditional American system of free trade and enterprise."

Sees 'Monopoly' Involved

Chairman O'Mahoney declared the situation was but another manifestation of local communities trying to protect themselves against "monopolies."

Hatton Sumners, Chairman, House Judiciary Committee, declared the situation presented the most important problem of government facing the country today, i.e., whether the states are capable of solving the problem themselves or whether it will be necessary to concentrate unlimited power in the Federal government at Washington to the detriment of our Democratic form of government.

Senator Wallace White, Rep. Me., joined with Senator O'Mahoney and Congressman Sumners in challenging Mr. Bane as to the public demand for solution of the problem, Sen. White alleging that in all of his 20 years in Congress he had never received a complaint about it.

Commission Agents Protest Reductions In Commission Rate

N. P. N. News Bureau

CLEVELAND, March 19.—Commission agents of Standard Oil Co. of Indiana in the Evansville division, covering the lower parts of Indiana and Illinois, have organized to protest against proposed reductions in their commissions.

Their organization has been incorporated under state laws and officers elected, according to Frank Weatherford, Indiana Standard commission agent at Mount Vernon, Ill., who was interviewed by NPN over long-distance telephone today. Mr. Weatherford is secretary-treasurer of the commission-agents' organization. Other officers, he said, are J. S. Hood, Metropolis, Ill., president; and Steve Reel, Pinckneyville, Ill., vice president.

There are 119 members of the association now, embracing all but 3 of the Indiana company's commission agents in the Evansville territory, Mr. Weatherford added.

All except about 10 of the association members are commission agents managing bulk plants, he said, the others were commission truck drivers.

The proposed reductions in commissions, putting the agents on a flat-rate schedule, were to go into effect April 1, he added.

Economist on O.B.I. Program

NEW YORK, March 18. — Trade Practices and Their Relation to the Oil Burner Industry, will be the topic of Edwin B. George, economist on the staff of Dun & Bradstreet, Inc., featured speaker at the 17th annual meeting of the Oil Burner Institute at Statler hotel, Buffalo, April 2.

Virginians Drive Despite Cold

RICHMOND, VA., March 16. —Despite a week or more of subzero weather in Virginia during January, gasoline tax collections showed a slight gain of 0.27% over January of 1939.

Help Pick the 'Grand Old Marketer' For Tulsa Oil Exposition

TULSA—The marketing division of the oil industry will be honored at the eleventh International Petroleum Exposition in Tulsa, May 18 to 25, when a gold medal and title of "Grand Old Man of Marketing" is bestowed on an individual to be selected by a committee headed by R. W. McDowell, Tulsa, vice-president and general sales manager of the Mid-Continent Petroleum Corp.

Mr. McDowell, chairman of the Exposition's marketing committee, has been requested by the "Old Timers" committee of the show, to seek nominations from the marketing branch of the industry.

The award is to be made upon the basis of the length of service and contribution to the marketing division.

"This is the first time that the marketing division has had an opportunity to honor one of its members at the Exposition," said Mr. McDowell who explained that previously only one award has been made for the industry as a whole.

"The award has usually gone to the production division because it is much older and since the periods of service of these in this branch have over-shadowed pioneers in marketing," he said. This year the show is making separate awards for each branch of the industry, he added.

Nomination blank, supplied to NPN by the exposition committee, is printed below.

Heads Expo Committee

R. W. McDowell

ENTRY BLANK

Grand Old Man of Marketing
For the International Petroleum Exposition,
Tulsa, Oklahoma, May 18 to 25, 1940

The "Grand Old Man of the Marketing Division of the Petroleum Industry" will be selected by the "Old Timers" Committee of the International Petroleum Exposition and a medal awarded during the 1940 Exposition, May 18 to 25, 1940, at Tulsa.

NAME .....

ADDRESS ..... CITY .....

STATE ..... PLACE OF BIRTH .....

DATE ..... HOW MANY YEARS IN THE INDUSTRY .....

FIRST JOB IN THE INDUSTRY .....

.....

.....

.....

(Please give place, date, name of company and kind of job.)

Still engaged in oil industry? (check) ....
Yes. No.

NOTE: Candidates for "Grand Old Man of the Oil Industry" must have been actively engaged in the oil industry for a reasonable period and have made a definite contribution to the industry. "Old Timers" or their friends may make nominations. We suggest that "Old Timers" accompany the entry blank with a letter telling of their early experiences.

PLEASE MAIL BLANK TO: **R. W. McDowell, chairman**
International Petroleum Exposition
Tulsa, Oklahoma.

The Editor's Page—

Readers Comments and Opinions will be much Appreciated by—WARREN C. PLATT, Editor and Publisher, Penton Building, Cleveland, O.

Prying Questions in U. S. Census

Forecast Threat in Ickes Oil Control Bill

Oil men can look, with probably far more interest than they realize, on the present controversy at Washington over the inclusion in the census, of questions that many consider private and none of the government's business, at least the business of a truly democratic government.

Oil men's interest need not be so much as to whether the general welfare of the country and the proper operation of government requires it to know whether you have earned less than $5000 a year and if so just how much and whether you have a mortgage on your home. What need concern oil men is the great difficulty citizens encounter when they undertake to oppose or change rules made by a single man in government, a man who is given great authority that may be none-too-well defined and who in the vernacular of these days of totalitarian governing schemes, is known as a "bureaucrat."

It appears in all this present discussion that members of the Department of Commerce and of its Bureau of the Census, held consultations with some alleged business interests who are credited by the Census Bureau with wanting the objectionable questions asked. However, it does not appear that there was any general publicity to inform the rest of the citizens, taxpayers and voters, that such questions were being considered to be asked of them. The citizens might not have known of these questions until they were confronted with them and threatened with heavy fines and jail sentences if they did not answer forthwith.

Citizens, as single individuals under such circumstances, would naturally feel powerless to rebel. Each citizen would be alone in his consideration and action against any such invasion of his rights, if there was unjustifiable invasion. Government, therefore, would be picking off each citizen, one at a time,—just the way "revolutions" and "dictatorships" have been established.

Rule by city councils, state legislatures and by the Congress at Washington may be cumbersome, inept and all that, but certainly the opportunity of any surprise invasion of the citizen's rights, is practically nil. There are too many cooks each armed with a spoon, at least, and every opportunity to talk over his, or her, political back-fence. Each can organize his own army of constituents and protestants.

The contrast between these two methods of government, one bureaucratic and dictatorial and the other truly democratic, the oil industry has had occasion to note in the past. Every oil man has reason to study it now as there is pending in Congress the Roosevelt-Ickes Oil Control bill which would give to one single man, sitting on the right hand of the Secretary of the Interior, unlimited power to ask an unlimited number of questions under any circumstances that he may wish and to make any use of them he may care to, of each and every single man, company and association everywhere in this oil industry. This Roosevelt-Ickes boss of the oil industry would be given far more power to conduct questionings and investigations than the Bureau of the Census now has. According to the proposed law, there just does not seem to be anyway to stop this Oil Boss no matter how unfair his questions might be or what use or publication he might want to give to your answers.

No oil man should lull himself into any sense that he may be secure because he is "small." There just isn't any limit put on the investigative powers of this Oil Boss. The extent of his powers to order this and that done by an individual oil man to "avoid waste" and to conserve oil and gas may be in some doubt due to haze in some of the language creating power of action. But the power to investigate without limit is most specific.

'Oil Boss' Would Have Power To Probe and Require Reports

Some oil men, and other business men, may argue that if a business is properly conducted it should not fear publicity. But how about publicity of not only YOUR salary and dividends, but of the pay of every one of your employes? How about publicity of operating costs on some operation of which you feel justly proud but you do not want your competitors to know about? How about details of your relationships with your customers? Of your profits?

It may be said that the Roosevelt-Ickes oil control bill does not mention these things but just read the exact language of the bill—

"The Commissioner (Boss of the oil industry) shall conduct such experimentation, investigation or demonstration relating to the application of ECONOMICS to . . . the uses of oil . . . and the storage, transmission and distribution of oil and its products . . . and (2) compile, analyze and publish such findings and data pertaining thereto, as the Secretary (of the Interior) shall direct or approve."

Here is the penalty if you do not respond to such investigations in full—

"or who fails to obey any order of the commissioner . . . shall upon conviction be fined not more than $1000 per day or imprisoned not more than two years or both. . . .

"Any person who willfully resists, IMPEDES, PREVENTS or INTERFERES WITH the commissioner OR ANY OF THE EMPLOYES OR AGENTS of the Office of Petroleum Conservation, or who willfully and knowingly makes, or causes to be made, any statement in any report or document required to be filed under this act OR ANY RULE OR REGULATION THEREUNDER, which statement is false or misleading as to any material fact shall upon conviction be fined not more than $5000 or imprisoned not more than one year or both."

While no citizen, be he oil man or any one else, is going to deny the government

facts to which it is lawfully entitled, the question is to what is the government entitled and how is the average citizen to know what is lawful in days of increasing bureaucratic agencies?

The Census questions in controversy in Congress might not have come to public notice until after they had been asked of the citizens. Then how is a citizen to know if they are legal unless he wants to refuse the information, and let the government arrest him and put him to the expense of a court trial?

The above-referred-to broad powers for a bureaucrat under Ickes to inquire into all details of one's oil business, apply not only to the bureaucrat but also to all the requests, instructions and rules and regulations issued by any of the EMPLOYES of that BUREAUCRAT no matter who or where they are. An oil man may not even know of the existence of these rules until he is faced with one of them together with a demand to comply forthwith or stand the above named heavy penalties.

Further, every oil man whether producer, refiner or marketer would be subject to the interpretation pretty much, that would be placed on each rule by each employe. The oil man could be entirely right in any argument with a bureaucrat employe but he, or his own employe, would have to go to the expense of taking a fight through the courts in order to establish his contentions and innocence of wrong doing. Such fights cost money and generally a great deal of money for the innocent victim of this bureaucracy, but they cost the bureaucrats not a single penny. The bureaucrats are not spending their money but your money, the taxpayer's money. And the bureaucrats pay nothing when they make mistakes and jail or otherwise injure honest citizens.

Then, still considering the above penalty clause, just what constitutes "resisting"? Particularly what is "impeding" or "interfering with"? Especially in the minds of the "employes or agents" of the Oil Boss?

Look What They Did To Wisconsin Shoe Repairman

Every oil man, no matter who he is, might well think of all these proposed powers over him, as he recalls the news reports of last week about the little shoe repairman in Wisconsin who thought the government's business census questioner was "fresh" and "impolite" and refused to answer and thereupon set the vast prosecuting machinery of government grinding against him?

Oil men who have had anything to do with many of the New Dealers who have had or have assumed jurisdiction over the oil industry the past few years, know that many of them have neither been fair, honest nor lawful in their personal contacts with and demands of oil men, let alone being considerate or polite. Too many of them have strutted and pounded their demands like the dictators that they assume to either emulate—as in Russia—or denounce—as in Germany.

Then, to make sure that this proposed law reaches to every oil company executive, officer and manager, no matter who he is, the next section says,

"Any person who, directly or INDIRECTLY, controls the acts OR OMISSIONS of ANY person for which such person shall be liable under this section to the extent that the acts OR OMISSIONS of the controlled person constituting a violation were INDUCED by such person."

In plainer English this clause seeks to hold every one of authority for all things done or left undone, regardless of the reason therefor, by all persons under his authority.

Then the following section extends still further the scope of the inquisitorial powers of the Boss of Oil and his employes, when it says,

"The Commissioner may, IN HIS DISCRETION, make such investigations as he deems necessary to determine whether any person has violated OR IS ABOUT TO VIOLATE any provisions of this act OR ANY REGULATIONS THEREUNDER or IS FAILING to comply. . . .

"Whenever it shall appear TO THE COMMISSIONER that any person is engaged OR ABOUT TO ENGAGE in any acts or practices which constitute OR WILL CONSTITUTE a violation . . ." the commissioner can take that individual into court for punishment.

In short, this Oil Boss and his associates, are given power to indulge in mental telepathy, crystal-ball gazing, card-cutting or any other form of magic they may like in order to discover—and they alone are the judges—whether you are not only ABOUT to violate one of their rules, known or unknown to you, but whether what you may be doing, that may be entirely lawful, WILL ultimately in their opinion, CONSTITUTE a violation of one of their rules.

And this use of the occult sciences, or no "science" at all, can be applied by the Oil Boss not only to YOU, the management of your company, but to the acts AND THOUGHTS—if any—of any of your employes.

"Nonsense", you, the reader, may say to all this.

It does seem like nonsense and more on a level of the "Court" of the "Red Queen" of "Alice in Wonderland." But it also is the "nonsense" of which the dictatorships of Russia, Germany and Italy are made. It also is the "nonsense" that government, aided by business men, sought to inflict on others, and themselves, during the late code days; and the "nonsense" that has been used by various commissions and bureaus of the present administration at Washington, and at one time in Louisiana.

So, as we in the oil industry read of the controversy at Washington over the alleged unfair and illegal questions in the Census, we can think of ourselves if some of the inquisitorial powers of this Roosevelt-Ickes oil control bill were given to other bureaucrats. The Census questions in themselves, may not be of greatest importance, either to the people or to the oil men. That is properly every man's opinion and the final opinion of Congress.

Claim Authority to Interpret Extent of Powers Granted Them

But what is of great importance to every oil man is the vigor and tenacity with which those in office seek to retain the POWER to determine the Census questions WITHOUT ADVICE of Congress or of the citizens; how one member of the Roosevelt cabinet is bitterly criticizing the RIGHT of a senator even to doubt his authority to ask what questions his bureaucrats desire, or the right of the senator to warn and advise the citizens against a rule that he, and many others, think is a violation of their rights.

All this is important because another member of the same cabinet, with presidential blessing, is seeking from Congress, ALL of the powers, enumerated herein, over every oil man, inquisitorial powers to the absolute *nth* degree. . . . . .

Regardless of each individual oil man's opinion as to what is conservation of crude oil and how it should be carried on—which is the reason given for asking for the above powers—, regardless of whether he is for or against the Connally "hot oil" law, whether he wants marketing "divorcement" or what as his particular cure-all for his conception of the difficulties of the oil business, each oil man should study this request for POWER over HIM and HIS MOST INTIMATE Affairs, should study this effort to get POWER to ANTICIPATE and decide ON NO EVIDENCE WHATSOEVER that he MAY BE ABOUT to violate a RULE made without hearing of any kind whatsoever, and without his knowledge, and which may be a gross invasion of his rights.

The Roosevelt-Ickes oil control bill raises, as the big primary question this creation of MORE ARBITRARY power over all oil men. And that is exactly what the argument over these seemingly rather insignificant Census questions is all about.

Newspaper Editor Reviews Years Of the 'Roosevelt Revolution'

EDITOR'S NOTE—The following comment on centralization of power at Washington under the New Deal, by David Lawrence, editor of the *United States News* and veteran Washington correspondent of more than a quarter of a century, is of direct interest to every oil man. The continued efforts of the New Deal first to put the oil industry under a cloud by a barrage of criminal indictments, Congressional investigations and now promised more criminal proceedings to effect "divorcement" and breaking up of alleged "patent pools," and second to "cash in" on such attacks by endeavoring to enact the Roosevelt-Ickes oil control bill, appears to be all in line with the procedure which Mr. Lawrence says has been followed at Washington.

Mr. Lawrence's review of the Roosevelt "Revolution" suggests one explanation for the vigorous, unfair and untruthful battle Secretary Ickes is making to get control of oil.

Complete text of Mr. Lawrence's article follows:

Much has been said and written to the effect that the United States has undergone a change in its system of government in the last seven years, but it is doubtful whether any considerable number of the American people really sensed the transformation.

Seven years have gone by in which the governmental process has been altered in so many respects that a broad perspective of the whole can alone reveal what has happened since March 4, 1933.

The prime characteristic of the New Deal today is its autocracy. It never admits error. Its motto is that the end justifies the means.

The gradual concentration of economic power in the hands of governmental bureaucrats has shocked those who are familiar with the intricacies of business and finance, but it has not yet awakened citizens generally to the dangers that confront them.

Little by little, one by one, the New Deal agencies have either acquired from a careless Congress broad discretionary powers or they have boldly written into the statutes regulations that have no sanction of law. Ordinarily the courts might be expected to check such abuses. But even the judiciary has been captured by the New Deal.

We no longer have a bi-partisan judiciary in the federal field. Active politicians and New Deal partisans have been put on the federal courts and, as for the Supreme Court of the United States, all five new appointees emanate from the cabals of official Washington. Can the Nation really expect justice from the very men who helped develop New Deal technique?

New Dealers Hold Control Of Federal Courts

The familiar talk in New Deal circles about the possibility that the Supreme bench may reverse a New Deal agency or declare any law unconstitutional is: "Well, 'our boys' will take care of that."

In other words, there is no hesitancy to abuse public power or even violate statutes or exercise authority not sanctioned by the Constitution, because there is a sublime confidence in the boast: "We've got the Supreme Court at last."

Control of the judicial branch, control of the prosecuting departments, complete control of so-called independent commissions and boards, and complete control of the purse-strings, and hence the control of disbursements to groups through subsidies, has accomplished about as comprehensive a "revolution" in America as if it had been achieved by physical force.

Even the R.F.C. is besought to use its lending power to force compliance with standards that Congress never authorized. The letting of government contracs, too, involving billions of dollars is often conditioned on acceptance of "reforms" imposed by bureaucracy.

Forewarnings of "Revolution" Were Ridiculed

The use of WPA for political purposes is well known, as is appropriations that put state governments at the mercy of the federal government.

Back in 1933, Ernest Lindley, of New Deal sympathy, wrote a book which he called "The Roosevelt Revolution." The word "revolution" was also used by the late Dr. Wirt in 1934 in trying to warn the country of what was coming, but the New Deal power of ridicule laughed that to one side and the country still refused to believe that anything fundamental had happened or would happen.

The technique of the "revolutionist" in a democracy is to get possession of all branches of the government and hold them indefinitely. Mr. Roosevelt may think his benevolence and good intentions will save the nation and hold the zealots at bay. He may tolerate complacently the implications of what may follow if the third-term precedent is broken. But there can be no escaping the attitude which the "revolutionists" in Washington have toward the whole third-term business. It is just another device to keep absolutism enthroned.

Look at the way the whole economic system has been dominated by New Deal agencies. Under the guise of protecting investors, the Securities and Exchange Commission was created; but today the SEC interferes in management and attempts to dictate financial operations of private companies with the result that millions that should be spent in construction and the creation of employment are not spent because new capital is intimidated.

Besides the SEC, there is the National Labor Relations Board, which brazenly confesses that the end justifies the means. Here we see members of a quasi-judicial body in intimate collusion with one faction of labor unionism, conspiring to bring charges against employers and generally making a mockery of the whole theory of judicial procedure and fair hearings. And why not? Who is to say them nay? The Department of Justice or the Supreme Court? Certainly not nowadays.

When arbitrary power has no check it runs wild. The so-called "liberals" of the New Deal are still trying to condemn conservatives as wicked because they resist reform. But it becomes apparent that conservatives will never agree to reform obtained by coercionism or by governmental disregard of due process of law as guaranteed under the Constitution. The system of private initiative will never yield tax surpluses if government controls credit, labor, agriculture, distribution and finance.

Taxes have grown to intolerable heights. The deficits of the federal government have increased beyond the limits dreamed of in 1933 and still the New Deal gives no sign of repentance or retrenchment. The reason is that at heart it conceives itself to be the "revolutionary" party. What are a few technicalities or a few omissions in verbiage in the laws of the land? The New Dealers feel they know best what the people need. And the people ought to be happy, presumably, because of the benevolent purposes which the Roosevelt "revolutionists" have articulated. "So many good things have been done" is urged upon us as a reason for condoning or minimizing the improper use of public power.

Public Funds Can Mean More Public Power

It is necessary to understand the spirit of the New Deal conquest. The truth is that the New Deal came in on a wave of reform through the customary electoral processes, and there was no intimidation at the polls in 1932. What happened in the 1936 election, however, is a different story, for here we have a repetition of the methods so characteristic of the days of the Roman Empire when direct subsidies from the governing authorities insured a perpetuation of political power.

It can also be insisted that America has not been conquered by a coup d'etat because presumably the election of 1940 will be free from any governmental coercion or force, though the mechanism whereby labor organizations and farm units are linked politically to an administration which dispenses favors to them as against other classes, does raise

a question as to how far governmental power can be or is a factor in maintaining the existing administration by influencing a substantial number of electoral votes.

Mr. Roosevelt once asked a radio audience in what way had civil liberties been curtailed in America. He might have asked naively in what way has the American constitutional system been changed by the New Deal.

The formula may never have been deliberately planned—it is much easier to believe that power merely fed upon power and that bureaucracy merely built new bureaus and acquired new powers as it found a subservient Congress supple in its hands.

Quest for Personal Power Reigns Supreme

The concept of government which the New Dealers have today was not revealed as clearly in 1933 as it is now. Seven years have served to clarify purposes and intent, to demonstrate how governmental power can be exercised to curtail civil liberties and to destroy individual initiative and freedom of enterprise. During seven years vast powers never before exercised by the federal government have been assumed and yet not a single amendment to the Constitution has been submited to the people in those seven years.

Far from being a "liberal" regime, the New Deal has really indulged in some of the practices of the old reactionary days of Republicanism when we saw special privilege rampant and a wicked partnership between sinister interests and governmental power. All this was child's play, however, compared to present-day exploitation.

Seven years of "revolution" have passed and still 8,000,000 persons are idle. The economic system is full of friction and domestic war.

Selfishness and the quest for personal power reign supreme n Washington.

The old, old idea that maybe self-sacrifice and unselfish public service is a basic necessity among public servants in a democracy has gone by the boards.

Hence we have the clash of selfish individualists and selfish collectivists.

Maybe the 1940 elections will furnish a counter "revolution," or perhaps it will only confirm the fear that the election of 1932 was really the last free election in America and that as long as the administration in power can spend nine billion dollars a year, the fiat of the New Deal will still remain.

Oil and Gas Not Involved

N. P. N. News Bureau

WASHINGTON, March 18.—Senate investigation of the administration of the public lands as proposed by Sen. McCarran, D., Nev. (S. Res. 241) is *not* directed at the mineral aspect of public lands but rather the use of public lands for livestock grazing as controlled by the Taylor Grazing Act, Sen. McCarran's office told NATIONAL PETROLEUM NEWS.

A.A.A. Plans Hearing On Roadside Control

WASHINGTON, March 18. — Hearings on roadside control programs, which include restrictions on commercial structures—such as service stations—and signs and billboards, will be held here this spring by American Automobile Assn.'s committee on roadside development and control. Representatives of civic and commercial interests will be invited to testify.

The automobile association's policy in this matter is based on the suggested uniform law adopted at its 1938 annual convention in Cleveland. This model state law would ban new signs and commercial structures from "encroaching" within 1000 ft. of highways, except in commercial districts where no new structures would be permitted within 50 ft. of the roadway. (See NPN, March 15, 1939, text of A.A.A. model law and discussion of its provisions.)

William A. Stinchcomb, Cleveland Metropolitan Park District, is chairman of the A.A.A. roadside committee.

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Oil Transportation News

Latest developments in freight rates, legislation, regulations, and new construction affecting transportation of petroleum products by truck, barge, tanker, pipeline, and railroad.

Short-Haul Rate Cut Increases Rails' 'Take'

OKLAHOMA CITY, March 18. — Present petroleum rail rates within Oklahoma and Kansas and between Oklahoma, Kansas and parts of Missouri and Arkansas, representing an approximate reduction of 35%, are "compensatory" and have resulted in increased tonnage and revenue to the rails. That was the gist of the rails' presentation at a joint hearing held here last week by an Interstate Commerce Commission examiner and the Oklahoma Corporation Commission on the recently-reduced rail rates to meet truck competition.

Rails opened their testimony with exhibits purporting to show that the reduced rates were "remunerative" and that ton-per-mile earnings on petroleum shipped under new rates exceeded those on all traffic. It was admitted, though, that the rates on shipments beyond 150 miles were "excessive." Rail witnesses said rates beyond 150 miles "necessarily" had to be graded sharply upward to meet the higher scale of long-haul rates in adjoining railroad territory.

Shippers represented at the hearing questioned the authority and rights of the Oklahoma Corporation Commission in calling for the joint ICC-OCC investigation. They also challenged jurisdiction of the Oklahoma commission over interstate rates and likewise the ICC's jurisdiction over Oklahoma intrasate rates. For this reason, shippers asked that the investigation be dismissed. No action was taken on this request.

Rate Base Proposed

One Oklahoma shipper recommended petroleum rates in the southwestern states be based on the cheapest form of transportation compensatory to the carrier. Then if, for instance, rails wanted to meet pipeline or truck competition, they should publish a competitive scale of rates. These competitive rates, in order to prevent discrimination, should blanket the entire territory and should not be limited to one section, he added.

It was pointed out that shippers are entitled to and will use the cheapest form of transportation. If for-hire truck and rail rates are too high, then the only alternative for the shipper is to plan and operate his own means of transporting petroleum.

Shippers commended rails for the reduced rates on shipments up to 150 miles, but added that rates beyond this point were "exorbitant." The short-haul schedule will win back for the rails even more of the petroleum hauls lost to the truckers, they predicted. But there should be an equal adjustment in rates beyond 150 miles and origin relationships should be maintained, they added.

Truckers Ask Rate Hike

When for-hire truckers complained that reduced rail rates had resulted in chaotic transportation conditions, shippers replied that few if any truck tariffs had been filed and no basis of comparison of rail and truck rates was obtainable. Truckers contended that the two regulatory bodies should revise rates upward so the truckers could continue hauling petroleum products.

The Oklahoma City hearings were brought to a close March 14, after fourth sections relief was discussed.

Resume at Denver

Hearings will be resumed at Denver, March 18. This phase of the investigation will pertain mostly to the Oklahoma-Kansas to Colorado rates, which were included in the investigation. Then on March 21 at Topeka, Kans., shippers will present the bulk of their testimony, it was said.

Oil Men to Oppose Waterway Toll Bill

N. P. N. News Bureau

WASHINGTON, March 18.— The oil industry will be given an opportunity before the adjournment of Congress to present its objections to enactment of a bill proposing to levy a toll on all freight transiting locks built, owned and operated by the U. S. government on all rivers in the country.

Hearings scheduled here for today were postponed due to the absence from the city of Rep. Snyder, Pa., sponsor of the bill (H. R. 6939). Toll would be 1c per ton for each lock transited.

Effect of the legislation upon bulk movements of gasoline and petroleum is apparent upon the realization that there are 26 locks on the Mississippi River between Alton, Ill., above St. Louis, and the Twin Cities and 48 locks on the Ohio River between Cairo, Ill., and Pittsburgh.

Tolls on a gallon of gasoline moving from the mouth of the Ohio river up to Pittsburgh would amount to about ⅛c.

More significant, however, than the amount of the toll charged is the fact that this proposal would be an entering wedge to overturn the policy of free waterways that dates from the birth of this country. Once the policy of charging for use of waterways was adopted, the next step might well be a hike in the toll rates so as to "equalize" competition between water carriers and other transportation media.

13,000,000 Tons on Mississippi

Total movement of petroleum products on the Mississippi river and its tributaries in 1938 was more than 13,000,000 tons.

Several oil companies have requested Subcommittee Chairman Chapman, Ky., to be heard at the prospective hearings.

Chances of enactment of this legislation at this session appear unlikely at this time.

There are 7 locks in the Illinois Waterway between Lake Michigan and the Illinois River, 11 in the Muskingum River, 10 in the Tennessee River and 14 in the Cumberland River, all draining into the Ohio River basin, according to U. S. Army Engineers. Transiting of several locks also is involved in operations on the Monongahela, Allegheny, Kanawha and Warrior Rivers.

Economy Note On Waterways Sent By FDR

N. P. N. News Bureau

WASHINGTON, March 18. — The National Rivers and Harbors Congress in its 35th annual convention here last week received a message from President Roosevelt sounding an economy note on flood control projects, and river and harbor improvement programs — that is, less federal money for this work.

The omnibus transportation legislation, now the subject of a major tussle between House and Senate conferees in an attempt to reconcile Eastman-Splawn versions, respectively, of Senate and House bills, was an outstanding topic among those attending the convention. The legislation would subject inland, coastwise and intercoastal water traffic to Interstate Commerce Commission regulation. Tankers and barges are exempted in the House version, not in the Senate.

Durward H. Primrose, editor, "Marine Journal," told the meeting that "the waterways must be left free" if they are to be conserved in a state of efficiency where their ability "to offer cheap transportation of bulk commodities is now more than ever acting as a brake upon the elastic conscience of the railroad rate makers."

Navy Builds 'Gas' Storage

WASHINGTON, March 18. — Navy Department today awarded a contract for $138,128 to Aqua Systems, Inc., New York City, for construction of gasoline storage and distributing facilities at the Naval Air Station at Jacksonville, Fla.

WASHINGTON — Annual meeting of the American Assn. of Motor Vehicle Administrators will be held in Albuquerque, N. Mex., June 5 to 8.

Rails Defend Oil Rate Cut Into Colorado

DENVER, March 19.—Rails appearing here at the Interstate Commerce Commission's investigation of recently reduced petroleum rail rates into Colorado said private carrier truck transportation constituted rails' keenest competition, necessitating reduced rates from southwestern origins to Colorado.

A 96% loss of petroleum tonnage from southwestern refineries into Colorado was reported by rails during the period 1931 to and including 1939. This business was taken by the trucks and more especially by private-carrier truckers, rails said. For this reason and in an effort to gain back lost business, rails said they had reduced petroleum rates to Colorado destinations. These rates are compensatory to the rails and at the same time competitive with private carrier, it was said.

Representatives of contract and common carrier truckers were present, but private carriers failed to appear. Truckers present contended the trucking industry should be preserved and that the ICC should order petroleum rates under which both rails and truckers could operate at reasonable profits. Present rail rates are not compensatory to contract and common carrier truckers, it was said. No cost figures were presented by truckers.

Truckers of the Rocky Mountain area presented for consideration a proposed "live-and-let-live" scale of petroleum rates, which they said represented increases over present rates.

Shippers, while present at the hearing, did not testify.

Hearings closed here this morning and will be continued at Topeka, Kansas March 21 on reduced rates within Oklahoma and Kansas and between Oklahoma, Kansas and parts of Missouri and Arkansas. Rails were said to have finished their evidence at the hearings today. Rebuttal testimony by truck and shipper representatives is expected to close the hearings at Topeka later this week. (Earlier story on Page 18)

'Dirty' Tankers Continue Rise

N. P. N. News Bureau

NEW YORK, March 18.—Charter rates for "dirty" boats continued to move up, with fixtures reported made at new highs the week ended March 16. Last paid for "dirty" tonnage from the Gulf to North of Hatteras was 60c per barrel for light crude or fuel, and 66c for heavy crude or fuel. These rates are 3c per barrel above the last record-high reported the week previous.

Boat rates for transportation of "clean" petroleum products from the Gulf to North Atlantic ports were unchanged at levels to which they dropped three weeks ago. However, prevailing charter rates for "clean" tonnage of 64c, 67c and 70c per barrel for gasoline, kerosine and light fuel oil, respectively, are only 2c a barrel below the all-time record highs for this movement reached early in January, and which held through the third week of February.

While "dirty" bottom rates reached new high prices last week, and "clean" tonnage continued unchanged, reports in the market were that interest in boats had sluffed off considerably, with charterers not reaching out for April tonnage. Boats were available for April movement at price levels existing as the week closed, boat men reported.

Canvass of the New York boat market continued to yield but little information regarding rates and movements of foreign flag vessels for shipment of products from the Gulf and South America to neutral foreign countries.

Fixture of a "dirty" boat from the Gulf to a Mediterranean port at $14 a ton was reported. Another fixture of a foreign flag boat from Aruba-Curacao to Buenos Aires, Argentina, at $12.50 a ton for "dirty" trade was heard. It is understood that this rate is slightly more than double the normal peace-time rate for this movement.

ICC Calendar

DECISION

Boyd Transportation Co., Boise, Idaho. (MC 33608 and MC 33608, Sub. 1) Upon reconsideration, findings in prior reports modified so as to authorize applicant to operate as a contract carrier of petroleum products, in tank trucks, from Portland and Willbridge, Ore., in addition to Linnton, Ore., to certain points in Idaho.

HEARINGS

Kress and Sons, Grand Rapids, Mich. (MC 100437, Sub. 2) April 4, Lansing, on application to extend operations as a contract carrier of petroleum and products in Mich., Ohio, and Ind. over regular and/or irregular routes.

Koenig Bros., Scottsbluff, Nebr. (MC 100792, Sub. 1) April 8, Cheyenne, Wyo., on common carrier application to transport petroleum products in Neb., Wyo. and Colo. over irregular routes.

Socony Plans New Terminal

MILWAUKEE, March 18.—Wadhams Oil Co. (Socony Vacuum subsidiary) has just completed negotiations for a 20-year lease on 10 acres of Jones Island, city-owned property in Milwaukee Harbor, on which a $300,000 marine terminal will be built. Construction will start as soon as frost is out of the ground, according to R. O. Baumgarten, of Wadhams.

Improvements will include 7 tanks with total capacity of 7,000,000 gals., with loading rack to accommodate 8 trucks at one time. Because of the Wisconsin load-limit on trucks, however, shipments to points outside of Milwaukee will be by rail. Terminal will serve territory within 75-mile radius of Milwaukee.

There are three other terminals located on Jones Island, a peninsula off Milwaukee's south side jutting into Lake Michigan. Originally, it was an island, settled by a few squatters, but over the years the city has filled in from the shore. The City of Milwaukee leases but does not sell, land on Jones Island.

Shell Oil Company built the first terminal there in 1936 with two 15,000-bbl. tanks. Clark's Super Gas Co., Milwaukee, completed a terminal on Jones Island in August, 1939, with about 2,100,000-gals. storage capacity. Standard Oil Co. of Indiana also completed a terminal on Jones Island last summer with 7 storage tanks.

Reports on Move for Tractor Fuel Standard

N. P. N. News Bureau

CLEVELAND, March 16.—Standards for tractor fuel proposed at the fall meeting of the American Society of Agricultural Engineers in Chicago in December, 1938, are favored in six out of eight replies from tractor and engine manufacturers, and 11 out of 12 replies from oil compnies, the *Agricultural Engineer* states in its March issue.

Values of the proposed specification for No. 1 tractor distillate on which comment from the oil and tractor industries were received, are:

Octane Number:	30 minimum		
Distillation:	Minimum:	5% point not lower than	325° F.
		95% point not lower than	464° F.
	Maximum:	10% point not higher than	400° F.
		25% point not higher than	420° F.
		95% point not higher than	515° F.
		End point not higher than	540° F.

Several oil companies make and sell a tractor fuel meeting all requirements, but the practice is not common, the agricultural engineers society reports, adding that little value will result from the adoption of a standard unless tractor and engine manufacturers are willing to co-operate in its use and publication. No attempt to force the oil industry to meet the standard is contemplated.

DEATHS

Lyndon H. Oak

Lyndon H. Oak, European representative of E. B. Badger & Sons Co., Boston, died suddenly March 3 in London, where he had his headquarters. Mr. Oak had been associated with the Badger organization since 1929, and prior to 1934 he was in charge of the company's Tulsa office. He is survived by his widow, the former Grace Raymond of Newton, Mass.

* * *

John Lieber

John Lieber, 54, of Hartford City, Indiana, advertising manager of Overhead Door Corporation, died recently of heart trouble at a Hartford City hospital.

Overall Rate Case Denied by Eastman

WASHINGTON, March 19.—Chairman Joseph B. Eastman of Interstate Commerce Commission today told NATIONAL PETROLEUM NEWS there was no basis for reports in oil trade traffic circles that the ICC was about to order a nationwide investigation of petroleum transportation rates to provide a rate-making basis for railroads, trucks, waterways and pipelines.

The ICC chief attributed the report to commission's recent action approving substantial reduction in petroleum tariffs in Kansas and Oklahoma. This provoked protests from motor carriers and Oklahoma interests, precipitating investigation now under way of these rates. (See Page 18).

Third Grade Gasolines Show Increase in Octane

Octane Values of All Grades Reported By Bureau of Mines for Summer of '39

N. P. N. News Bureau

WASHINGTON, March 18. — The octane value of third grade and "regular" gasolines was higher in the summer of 1939 compared with previous years, while little change was reported in the octane number of premium-priced gasoline, according to the Co-operative Fuel Research Motor-Gasoline Survey made jointly by the U. S. Bureau of Mines and the Co-operative Fuel Research (C.F.R.) Committee.

Later surveys, such as those published by NATIONAL PETROLEUM NEWS in issues of Jan. 31 and Feb. 21, 1940, indicate that the "big push" in the East in hiking octanes came late last fall and early this winter.

The Bureau of Mines octane report covered 21 cities and districts, from Boston to Los Angeles. It included tests of 1679 samples of all grades of gasoline, and representing the products of 118 companies. They showed that the spread of 90% of the third grade gasolines tested during the summer of 1939 was 3.5 octane numbers higher and 4.5 numbers wider than for the previous summer. The A.S.T.M. octane number of 90% of the samples ranged between 51.8 and 71.8, with the highest third grade tested running 78.1 octane, and the lowest, 46.

The spread of 90% of the regular grade samples was both higher and wider by approximately one octane number than for the summer of 1938. These samples ranged between 70 and 73.6 A.S.T.M. octane number for the summer of 1939, with the highest regular grade tested running 75.2 and the lowest, 60.2.

Ninety per cent of the samples of premium grade tested in the summer of 1939 ranged between 75.6 and 81.3 octane number, virtually unchanged from the range of 76 to 81.3 octane numbers in the previous summer.

The 78.1 octane number (A.S.

Table 1. Regular Grade

District	A.P.I. Gravity	Sulfur %	Reid Vapor Pressure, lb.	A.S.T.M. Octane Number	I.B.P.	Distillation Range, °F. — Percent Recovered 10	50	90	End point
Boston	60.3	0.072	7.9	71.8	100	146	245	348	400
New York	60.7	.066	8.0	71.9	100	144	242	343	395
Washington	61.0	.076	7.8	71.4	100	144	240	346	398
Pittsburgh	59.8	.065	7.5	72.1	100	145	245	345	398
Cleveland	60.5	.059	7.7	71.5	103	144	242	353	404
Detroit	60.7	.059	8.0	71.7	98	143	244	350	400
Atlanta	59.3	.057	7.3	71.7	103	147	247	346	399
Chicago	60.8	.053	8.0	70.6	98	142	244	356	404
New Orleans	59.7	.069	7.6	71.0	103	146	250	347	396
Memphis	60.4	.062	7.5	71.4	103	150	250	350	398
St. Louis	60.5	.067	7.9	71.4	101	145	243	352	401
Minneapolis	61.5	....	8.1	71.2	96	143	244	356	404
Omaha	60.8	.032	7.7	71.1	99	147	250	359	404
Tulsa	60.4	.037	7.2	71.2	101	147	249	360	402
Texas	59.7	.064	7.8	71.8	104	146	250	349	396
S. Rocky Mt.	58.3	....	7.0	71.3	101	149	256	357	400
Mid. Rocky Mt.	59.4	.047	7.2	70.9	99	147	254	367	406
N. Rocky Mt.	60.0	....	7.3	71.6	102	150	263	358	396
Seattle	58.4	.209	7.3	71.7	104	146	250	346	398
Los Angeles	58.1	.13	6.9	72.0	100	151	252	353	394
San Francisco	57.9	.237	7.5	71.2	97	149	252	354	397
Average	59.9	.079	7.6	71.4	100	146	247	352	400

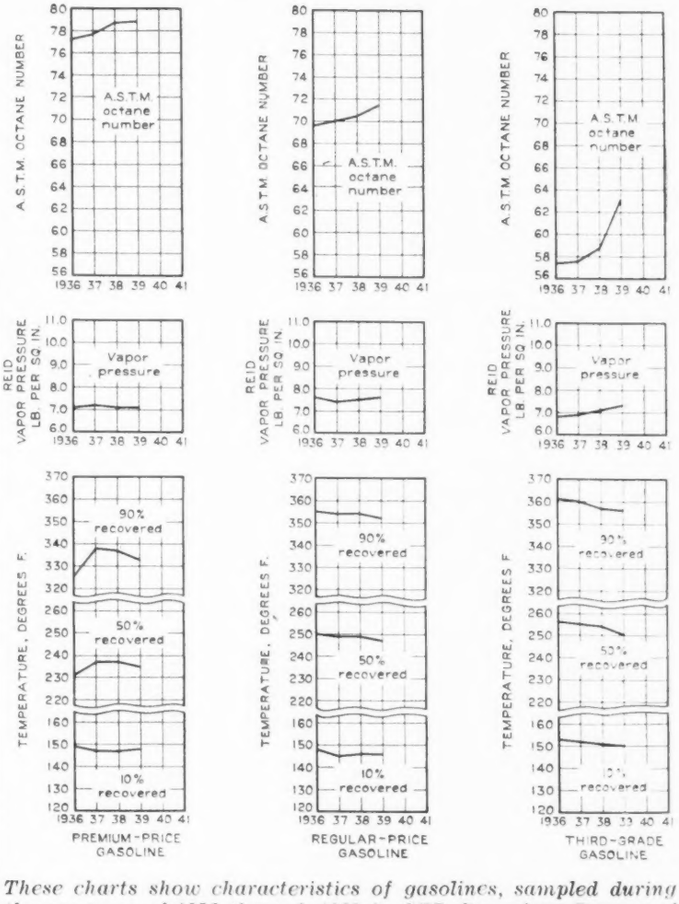
Table 2. Premium Gasoline

District	A.P.I Gravity	Sulfur %	Reid Vapor Pressure, lb.	A.S.T.M. Octane Number	I.B.P.	Distillation Range, °F. — Percent Recovered 10	50	90	End point
Boston	60.0	0.072	7.4	79.6	102	148	228	325	388
New York	60.6	.06	7.7	79.0	103	146	229	332	387
Washington	56.9	.098	7.1	79.0	110	151	216	314	376
Pittsburgh	60.8	.056	6.9	79.3	102	147	230	324	384
Cleveland	60.9	.055	7.6	78.0	102	141	232	340	401
Detroit	60.1	.069	7.6	78.3	99	145	242	345	395
Atlanta	60.1	....	7.0	79.4	110	152	225	317	385
Chicago	62.1	....	7.9	77.7	100	140	229	331	385
New Orleans	60.0	.069	7.1	79.1	107	150	234	328	386
Memphis	60.6	.045	7.3	79.0	105	154	238	330	381
St. Louis	60.2	....	6.8	77.3	108	150	240	348	400
Minneapolis	61.8	.031	7.5	77.7	102	145	231	340	392
Omaha	60.8	.041	7.3	78.1	103	147	237	338	389
Tulsa	60.7	.037	6.9	77.7	101	147	241	351	398
Texas	60.1	.057	7.1	79.6	110	151	238	337	390
S. Rocky Mt.	58.3	....	6.5	78.0	106	153	244	331	379
Mid. Rocky Mt.	60.2	....	6.5	76.5	106	154	247	345	390
N. Rocky Mt.	60.2	....	7.6	80.2	101	143	238	334	395
Seattle	60.1	.043	6.3	80.4	102	149	234	318	371
Los Angeles	59.9	.038	6.7	81.2	103	151	234	322	370
San Francisco	59.6	.055	7.0	80.0	104	151	235	323	376
Average	60.3	.053	7.1	78.8	104	148	235	333	387

Table 3. Third Grade Gasoline

District	A.P.I Gravity	Sulfur %	Reid Vapor Pressure, lb.	A.S.T.M. Octane Number	I.B.P.	Distillation Range, °F. — Percent Recovered 10	50	90	End point
Boston	61.0	0.069	...	64.0	99	150	240	335	391
New York	60.0	.059	7.1	68.7	103	148	243	345	399
Washington	59.2	.061	7.1	69.6	103	150	252	350	398
Pittsburgh	61.0	.06	7.4	70.2	104	145	240	340	386
Cleveland	63.4	.064	7.8	66.1	102	143	231	328	383
Detroit	62.8	.057	8.1	66.1	99	145	236	341	389
Atlanta	61.1	.053	7.8	65.7	102	142	239	337	390
Chicago	60.9	.04	7.8	65.9	102	149	250	354	403
New Orleans	60.8	.043	6.8	61.7	105	154	244	332	389
Memphis	61.0	.049	...	63.0	101	151	243	342	388
St. Louis	60.2	....	7.0	64.0	113	155	249	361	409
Minneapolis	62.0	....	8.2	65.0	96	144	247	370	418
Omaha	61.1	.035	7.0	65.8	103	154	251	358	411
Tulsa	60.9	.021	6.7	60.0	101	150	257	372	411
Texas	61.1	.047	7.4	58.6	110	155	249	351	408
S. Rocky Mt.	58.7	.057	7.4	56.7	103	154	262	379	422
Mid. Rocky Mt.	60.1	.026	7.0	56.1	101	152	257	370	414
N. Rocky Mt.	60.5	....	7.2	57.3	102	147	257	371	414
Seattle	56.8	.094	6.1	62.2	104	153	266	370	413
Los Angeles	56.7	.078	7.0	63.1	99	151	265	381	421
San Francisco	57.1	.158	7.4	62.9	97	152	264	371	414
Average	60.2	.063	7.3	63.1	103	150	250	356	403

Summer Gasolines, 1936 to 1939, Analyzed



These charts show characteristics of gasolines, sampled during the summers of 1936 through 1939 in CFR Committee-Bureau of Mines surveys. Basic data for the figures are the average values at the bottom of tables, such as those for summer of 1939 on opposite page

T.M.) third grade was found in the Middle Rocky Mountain area, where the average of all third grades checked was 56.1, and also where the 46 octane third grade was picked up.

Higher Octanes Found in East

The higher-octane third grade gasolines predominate in the East and the Middle West, according to the report, which shows that the average of all samples tested in the country was 63.1 (A.S.T.M.).

Third grade in the Pittsburgh area, however, lead the country, with a rating of 70.2. Washington, D. C. was right behind the Smoky City with an average of 69.6. New York City samples averaged 68.7. Cleveland, Detroit, Chicago, Omaha and Atlanta third grade gasolines all ran above the country-wide average, testing, respectively, 66.1, 66.1, 65.9, 65.8 and 65.7.

Regular Varies Only 1.5

The average octane value of regular-priced gasolines for each city and district varied only 1.5 octane number (A.S.T.M.), although individual samples ranged between 60.2 at Chicago, and 75.2 at St. Louis.

Pittsburgh also had the ranking high octane regular gasoline, with an average of 72.1 for all samples tested in that area. Chicago regular grade was low in octane, with an average of 70.6. Los Angeles had the second highest octane value for regular grade, 72.0, while the Middle Rocky Mountain area, where the average of samples was 70.9 octane number, was the second lowest.

The average of all premium grades of gasoline tested for the country as a whole was 78.8 octane number. Premium gasolines on the West Coast were higher in octane value than elsewhere, with Los Angeles samples testing an average of 81.2; Seattle, 80.4; and San Francisco, 80. Samples of premium grades from the North Rocky Mountain area average 80.2 octane. The averages for other districts all ran below 80, but above the low of 76.5 for the Middle Rocky Mountain area.

Los Angeles Premium is Highest

The highest octane value in an individual sample of premium gasoline was found in the Los Angeles area, 83 (A.S.T.M.). The lowest of any individual samples was found in New York City, 70.3 number.

The ranges of vapor pressures, covering 90% of all the samples, were "essentially unchanged as to level and spread for this summer as against the corresponding samples during the summer of 1938," the report adds.

The ranges of temperatures in the distillation of regular and premium are generally unchanged, although slightly lower than for the previous year. The middle range of temperatures for third grade distillation is appreciably lower than for the summer of 1938, the report shows.

Burner Shipments Rise

N. P. N. News Bureau

WASHINGTON, March 16. — Oil burner shipments were up sharply in January, for both the distillate type and for burners used in industrial processes, etc., according to Census Bureau figures. During January, a total of 18,506 distillate oil burners were shipped compared with 8598 and 6786 burners shipped in January 1939 and 1938 respectively. January shipments of burners using C.S. No. 1 oil or heavier totaled 12,963 as against 8738 in January, 1939 and 6338 in same month of 1938.

Stocks of 'Natural' Are Below '38 Level

N. P. N. News Bureau

WASHINGTON — Natural gasoline production dropped to 5,786,000 gals. in January, as compared wnth 6,056,000 gals. in December, according to Bureau of Mines. Most outstanding decreases were in the Seminole, East Texas and Kettleman Hills districts.

Stocks increased to 187,992,000 gals. on Jan. 31, up 2,310,000 gals. but still under the total of 191,814,000 gals. on Jan. 31, 1939.

Oil Scouts Will Meet at Hot Springs, Ark.

TULSA, March 11. Annual meeting of the National Oil Scouts and Landmen's Assn. will be held at Hot Springs, Ark., May 30, 31, and June 1, according to announcement by Ralph C. Steinman of Tulsa, convention chairman and scouting department head of Sinclair Prairie Oil Co.

Penn Crude Runs Drop

CLEVELAND—Refinery runs of Pennsylvania grade crude averaged 69,410 bbls. daily during the week ended March 9, down 13,015 bbls. from the previous week, and the lowest since the week ended Juane 3, 1939, according to National Petroleum Assn. reports.

Fuel Injection Opens New Era for Aircraft

By N.P.N. Staff Writer

WASHINGTON, March 15.— The replacement in aircraft engines of carburetion with fuel injection, the method used in feeding fuel to diesel engines, was hailed by Carl F. Bachle, Continental Motors Corp., as a major development of the last year at the National Aeronautic meeting of the Society of Automotive Engineers here. His paper bore the title "Progress in Light Aircraft Engines."

Considerable attention was given at the meeting to light plane development on account of rapidly increasing demand for private flying the past year. During 1939 production nearly doubled, pilots increased 37%, and private airplanes increased 24%. Another subject given more than ordinary attention was fuel tank construction. Welded construction and the "Mareng cell" were discussed. The latter is made of grade "A" airplane cloth impregnated with neoprene. Several advantages were named such as reducing fire hazard and fuel loss and permitting greater carrying capacity of fuel. One session was devoted to passenger comfort of air transports.

With fuel injection "power at altitudes is higher and there is greater assurance of uniform mixture distribution under all conditions of operation," Mr. Bachle said in his paper on fuel injection systems. However, the outstanding advantage of fuel injection was said to be positive prevention of ice in the induction system without the use of air heater or manifold jacket.

Fuel Consumption is Same

"Engine output and fuel consumption are approximately the same as with carburetion at the same intake manifold pressure," he said. However, greater performance has been shown in airplane tests and both power and fuel consumption are expected to be improved over that obtained with carburetion after further development. "Acceleration and part-throttle operation are faultless even under coldest atmospheric conditions or after a long glide," he said.

It is not expected that fuel injection will supplant carburetion in all classes of engines for some time because of present increased cost. However, Mr. Bachle said it is noteworthy that the engine selling price is increased less than 10% and this increase is partially offset by reduction of installation cost through the elimination of intake air heater systems. A primer is necessary for good starting because at cranking speeds the injector does not build up sufficient pressure to open the check valve in the nozzle.

May Use 'Safety Fuels'

While Bachle's discussion of injection involved gasoline largely, he said the use of safety fuels will probably require fuel injection because of the ease of atomizing the fuel as compared with carburetion. Safety fuel development is aimed at elimination of fire hazard in aircraft resulting from the low flash point of gasoline. Safety fuel would have a flash point over 100° F.

The power output and fuel consumption obtained with aviation safety fuel having a flash point as high as 134° F. (comparable with kerosine), when injected into a laboratory test engine, was shown by Oscar W. Schey, National Advisory Committee for Aeronautics, to be equal to those obtained with gasoline. Mr. Schey gave a paper on the "Performance of Aircraft Spark-Ignition Engines with Fuel Injection" covering experimental work of several years duration to determine engine and fuel conditions for best performance.

Although the tests showed that gasoline consumptions with fuel injection and the carburetor were the same, it is believed that the fuel consumption on multi-cylinder engines will be reduced wih fuel injection because of better distribution. Tests on multicylinder engines have shown that better starting, acceleration, and maneuverability can be obtained with fuel injection, Mr. Schey pointed out. He also spoke of the advantage of eliminating icing difficulties when using fuel injection.

Discuss Factors in 'Safety Fuels'

While Mr. Schey believed that any reasonable safety requirement can be met in using safety fuel without any sacrifice in performance, there were a few factors brought up in the discussion following the presentation which showed other diffi-

culties to be overcome. S. D. Heron, Ethyl Gasoline Corp., questioned whether or not trouble might be experienced in idling on safety fuel at low cylinder temperatures such as might be encountered in a glide. Mr. Schey admitted this possibility might be serious and would be worth investigating.

Some difficulty has been experienced in dilution of crankcase oil when using safety fuel, according to A. L. Beall, Wright Aeronautical Corp. Mr. Schey replied that insufficient tests had been conducted to give conclusive results and that additional tests were to be made on crankcase dilution.

Private Flying Gains Impetus

Considerable interest was evidenced in light plane development and three papers were devoted to this field. Last year stands out as the year of public recognition and acceptance of light airplanes, according to C. G. Taylor, Taylorcraft Aviation Corp. "The number of civil airplanes outside of commercial and military aircraft increased 24% during the year, that is, from 11,159 to 13,772. The increase in pilots was 37% or from 22,983 to 31,264."

"The Civil Aeronautics Authority has a program under way in the colleges throughout our country to train 10,000 young men and women to fly." Interest in private flying is shown by last year's "largest annual gathering of aircraft — 'The Light Plane Cavalcade to Florida' " at which 700 light planes from all sections of the country gathered, Mr. Taylor said.

Mr. Bachle also referred to the demand for light airplanes by pointing out that 1939 production was nearly 3500 planes and nearly double the previous high, in 1938. Production of light planes was around 100 per year during 1931-4.

5000-Hp Engine?

Considerable interest was shown in the development of the barrel engine mechanisms described by E. S. Hall, manager of The Round Engine Patents, to show how to derive "More Power from a Smaller Engine," i.e. to develop 5000 horsepower from a 3000-pound engine with 7 sq. ft. frontal area. In this engine the cylinders are parallel to the shaft and power is transmitted to the shaft by a wabbler mechanism.

A few engines of this type of lower horsepower have been in use in airplanes. Little discussion followed the presentation of the paper but in spite of a somewhat skeptical reception one speaker from the floor called the engine the "next major development in aircraft." The engine is not a new development, however, and patents go back many years.

One of the features of the meeting was the presentation of motion pictures of combustion and knocking in an engine by A. M. Rothrock, National Advisory Committee for Aeronautics.

Industry Meets Demands, Waste Avoided As Oil Reserves Grow, Says Van Covern

BOSTON, March 16.—The nation's growing reserves of petroleum, and the oil industry's successful efforts to combat waste are significant examples of the continuing ability of the industry to meet demand for products, Fred Van Covern, New York, American Petroleum Institute's director of statistics, told the New England Gas Assn. here March 14.

"Our national production, transportation and refining facilities include ample excess capacity to meet the needs of any possible emergency for the national defense and for other essential needs", he declared, stressing the absurdities of warnings of an approaching oil shortage. Discussing in detail the significance of the expanding estimates of provides oil reserves, the statistician declared that supplies will be ample for generations.

Citing the trend toward the use of greater quantities of oil by the gas industry, Mr. Van Covern told gas men that use in their field has not progressed as rapidly as the gain in the total demand for petroleum, with the result that the gas industry as a whole required only about 1.2% of all crude processed in 1938, compared with about 1.57% in 1929.

Canadian Co-op Refinery To Be on Stream in June

REGINA, SASK. — Construction work on the new cracking plant of the Consumers' Co-operative Refineries here has been started, and is expected to be in operation by June. The Regina plant, first co-op refinery in the world, first began the manufacture of petroleum products in May, 1935.

East Lance Creek Map Ready

WASHINGTON — Geological maps of East Lance Creek field and the Red Springs anti-cline are now available from Interior Department here.

California Production Drops, Stocks Up, Prices Unchanged

N. P. N. News Bureau

LOS ANGELES, Mar. 16. — Two important factors in the present situation of the California oil industry are the current upward trend in the stocks of petroleum products on the Pacific Coast and the irregularity of crude oil and fuel oil prices.

For the last three quarters of 1939, each succeeding month showed a small but persistent decline in the quantity of crude oil carried in storage on the Pacific Coast. U. S. Bureau of Mines figures show that from May 1 to Dec. 31, 1939, crude stocks on the West Coast were reduced by more than 6,000,000 bbls. During the same period total stocks of all petroleum products in the same area were reported to have decreased by approximately 10,500,000 bbls.

Although at present no official figures are available, experts within the industry estimate that stocks of crude oil, as well as stored petroleum products in general, are no longer being reduced. On the contrary, slight but significant additions to stocks were made during the month of February and the first half of March, 1940.

Output Averages 606,000 Bbls.

So far, at least, as crude oil is concerned, the current increase in stocks does not appear to be caused by increased production. Statistics for February show that average output for that month was 606,000 bbls. daily, a decline of 2700 bbls. daily from the average for the previous month and a decline of 11,900 bbls. from the daily average of February, 1939. Production data compiled by the Central Committee of California Oil Producers indicated that the downward trend in production was continued in March, notwithstanding the fact that in a number of fields wells during the first half of the month are permitted to produce to capacity until they have reached their allotment.

These trends toward increased stocks of crude and refined products on the West Coast were said by some observers to be due, in part, to the decline in offshore shipments to the Orient. Japan, in particular, is believed to be purchasing larger quantities of Mexican and South American oil to make up for the decrease in her California purchases.

Irregularity in crude oil prices has been considered a disturbing factor in California marketing since Standard Oil Co. of California on Feb. 1 reduced its base price for Santa Fe Springs crude from $1.10 to $1.03 per barrel, and the fuel oil situation in the state has been equally disturbed since Shell Oil Co. on Feb. 9 restored the fuel oil price of 90c per barrel that had been in effect prior to Jan. 1, 1940.

Crude Prices Vary

Differentials of from 4 to 15c per barrel were reported paid for approximately the same grade of crude oil in different fields throughout the state. Apart from the initial announcements by Standard and Shell of the changes, respectively, in crude and fuel oil prices, no official statements have been made by any of the purchasing companies as to their price policies. Contracts governing the purchase of these products are believed, in most instances, to be based on Standard's posted prices for crude oil. No figures or estimates, however, were available as to the percentage of crude or fuel oil that is bought at scheduled prices.

Credit for the relatively favorable position of the California oil industry was generally given to the efforts of the voluntary proration officials of the state, who in face of price disturbances have succeeded in preventing a slackening of crude curtailment. Their success was considered a valid answer to the charges of wasteful and extravagant producing operations in California made by proponents of the Cole bill for federal oil control.

FTC Auto Trade Code Comes Up for Hearing

N. P. N. News Bureau

WASHINGTON, March 18. — Federal Trade Commission will hold a hearing here March 20 at which the automotive manufacturing, sales, distribution and auto accessory trades will be afforded an opportunity to present their views upon the proposed fair trade practice rules for the automobile industry.

The proposed rules relate to the sale and distribution of the products of the industry embracing all types of automobiles, cars, trucks, etc., and parts, accessories and equipment.

Texas Hearing Eyed As Production Rises

AUSTIN, Tex., March 18.—Texas oil men are expecting the statewide proration hearing by the Texas Railroad Commission here March 20 to be jerked out of its routine groove and to develop some interesting arguments.

Factors which are expected to start the arguments are:

1. Recent upswing in Texas allowable production.
2. Difference of opinion between two of the commissioners as to what should be done about allowables in April.
3. Possible airing of the criminal charges filed recently at Midland, Tex. against a former oil supervisor.

The Texas allowable production total has climbed already in March to approximately 1,560,000 bbls. That total is only a little under the record high allowable of August, 1937. It is considerably above the high of the past summer.

This increase in allowable, after Texas had started the month with a total allowable of 1,490,000 bbls. and almost 150,000 above the Bureau of Mines' estimate of market demand for March, has been due to increases granted several fields after hearing before the commission.

Sadler Urges Curtailment

Commissioner Jerry Sadler has announced he advocates a reduction in the allowables for April. He says he has made a survey of the situation and finds all available gasoline storage in the state is full; crude storage in really higher than had been represented, and that allowables have been granted in many instances where the wells could not make the increased daily production.

Commissioner Ernest O. Thompson has taken the opposite viewpoint. He says he knows of no Texas wells without outlet connections and that there appeared to be a strong demand at present for Texas crude. He said he did not think an additional 15,000,000 bbls. increase in crude stocks would be harmful. The Colonel added, however, that if evidence is developed at the hearing that too much crude was being produced he would "gladly and promptly" vote for a reduction in the state's output.

The charges filed at Midland apparently involved the question of potentials assigned by the former oil supervisor to certain wells in the west Texas area. The question of well potentials has been one of vigorous debate on former occasions and those operators who do not favor that method of determining a well's allowable have been strengthened in their arguments in recent months by court decisions favoring more consideration to such factors as acreage and sand thickness.

Court Grants 60-Day Stay For East Texas Allowable

HOUSTON, Tex., March 15.—The current East Texas proration order will not be disturbed by a federal court injunction for the next 60 days, and the Texas Railroad Commission can appeal to the U. S. Supreme court for a ruling on the validity of that order.

Those two points were decided here March 14 by two of the three federal judges who late in February decided the proration order was unreasonable as it affected the properties of the Humble Oil & Refining Co. and the Rowan & Nichols Oil Co.

The three judge court, it will be recalled, issued a statement after hearing the companies' plea for an injunction that the order would be declared void unless the commission revised it or decided to appeal to the supreme court within 10 days. (NPN, Feb. 28, page 22.)

The railroad commission requested the court to delay its issuance of an official injunction pending the appeal to the supreme court. Federal Judges Samuel Sibley of Atlanta and R. J. McMillan of San Antonio heard the arguments in that point here March 14. Federal Judge James V. Allred was absent due to a death in his wife's family.

The railroad commission's attorneys told the judges that small operators would be damaged if the injunction was made immediately operative and that "wide open" flow might result. Attorneys for the two companies proposed that the allowable from wells of the companies be granted increases with the understanding that if the commission won the case on appeal the excess production would be charged against future allowable.

The court ruled, however, that as a matter of public concern it was deemed best to leave the case as it was pending the appeal, and that the granting of increased production to the two companies might result in an avalanche of applications for injunctions.

The U. S. Supreme Court already has agreed to review another case brought by Rowan & Nichols in which the fifth federal circuit court had set aside a commission order.

'Gas' Inventory Hits100,000,000

N. P. N. News Bureau

NEW YORK, March 19.—For the first time in oil industry history, stocks of motor fuel crossed the 100,000,000-bbl. mark, with total inventory standing at 100,616,000 bbls. at the week ending March 16, according to estimates of the American Petroleum Institute compiled today.

One feature of note in the increase of 1,219,000 bbls. in stocks of gasoline last week, is the fact that inventory build-up on the East Coast and in Indiana-Illinois-Kentucky, both areas of large consumption, continues to outstrip the increase for the country as a whole.

East Coast stocks rose 866,000 bbls., while stocks in the three midwestern states jumped 639,000 bbls., or combined increase of 1,505,000 bbls., 286,000 bbls. greater than the country's hike in stocks.

Stocks at some areas of supply, such as Oklahoma-Kansas-Missouri, Inland Texas, and Texas and Louisiana Gulf Coasts, on the other hand, were lower. California stocks also were cut last week.

Crude runs to stills increased 50,000 bbls. on daily average during the week, the Institute's report shows, while stocks of light and heavy fuels were cut 752,000 bbls.; 485,000 bbls. of the reduction being made in light grades, and the balance of the cut, 267,000 bbls., being made in residual fuels.

740 at Wichita A. P. I. Meeting Pick Hamilton

WICHITA, Kans., March 15.—Official registration at the American Petroleum Institute's division of production meeting here March 14 and 15 was 740, setting a new record for the Kansas, Oklahoma and Texas Panhandle district.

Thomas J. Hamilton, Oklahoma City, representative of the Mid-Continent Pump Supply Co. of Tulsa, was elected chairman. This is the first time this office has gone to an equipment supply man. Hamilton formerly was production superintendent for Phillips Petroleum Co. in Kansas and Oklahoma City.

The new executive committee is composed of Hamilton, H. E. Miller, Lario Oil & Gas Co., vice chairman for Kansas; R. S. Knappen, Gulf Oil Corp., vice chairman for Oklahoma; George Gerlin, Skelly Oil Co., vice chairman for the Panhandle; Herbert R. Goodpaster, Kerlyn Oil Co., secretary and treasurer. C. H. Keplinger, Shell Oil Co., Inc., Wichita, as past chairman, becomes chairman of the advisory committee.

The next convention will be held in Amarillo, with the 1942 meeting in Tulsa.

When is an Oil Probe Not an Oil Probe?

N. P. N. News Bureau

WASHINGTON, March 18.—Proposal of a Senate anti-trust investigation of "the production, transportation, sale, and distribution of natural gas and petroleum," by Senator Nye, N. Dak. (S. Res. 245) was viewed here today as an attempt to influence the Department of Justice against consenting to entry of consent decrees in litigation against Columbia Gas & Electric Corp. rather than a move to probe the oil industry.

In long-pending suits in the federal court at Wilmington, Del. the department is seeking to divorce Columbia's control over pipelines and distribution systems handling Texas, Kentucky, and West Virginia natural gas in Ohio, Indiana, Illinois and Michigan cities.

Latest Oil Industry Statistics

Trends of Basic Figures

	March 16, 1940	March 9, 1940	March 18, 1939
Crude Production (Bbls. daily)	3,890,050	3,828,550	3,384,150
Crude Imports (Bbls. daily)	75,428	111,290	517,000
Crude Runs to Stills (Bbls. daily)	3,500,000	3,450,000	3,250,000
Gasoline Stocks (Bbls. total)	100,616,000	99,397,000	87,291,000
Gas Oil & Distillate Stocks (Bbls. total)	24,075,000	24,560,000	21,710,000
Residual Fuel Oil Stocks (Bbls. total)	103,558,000	103,826,000	108,661,000

Crude Oil Production for the U. S.

(American Petroleum Institute figures)

	Week Ended March 16 barrels	March 9 barrels	March 2 barrels
Oklahoma	407,850	118,800	407,550
Kansas	176,750	163,500	176,900
Nebraska			
Texas	1,489,450	1,481,550	1,496,950
Louisiana	279,950	282,550	281,050
Arkansas	69,750	69,250	69,000
Mississippi	8,800	7,450	6,800
Illinois	456,800	412,700	402,600
Indiana	11,050	10,300	9,650
Eastern (Ill. and Ind. excluded)	97,900	95,350	100,450
Michigan	64,650	64,550	63,850
Wyoming	70,400	69,950	65,200
Montana	17,050	16,850	17,200
Colorado	4,000	3,950	3,950
New Mexico	113,750	113,800	112,500
California	621,900	618,000	584,600
Total U. S.	3,890,050	3,828,550	3,798,250
Crude imports	75,430	111,290	80,710
Total New Supply	3,965,480	3,939,840	3,878,960

Weekly Changes in Crude Oil Stocks*

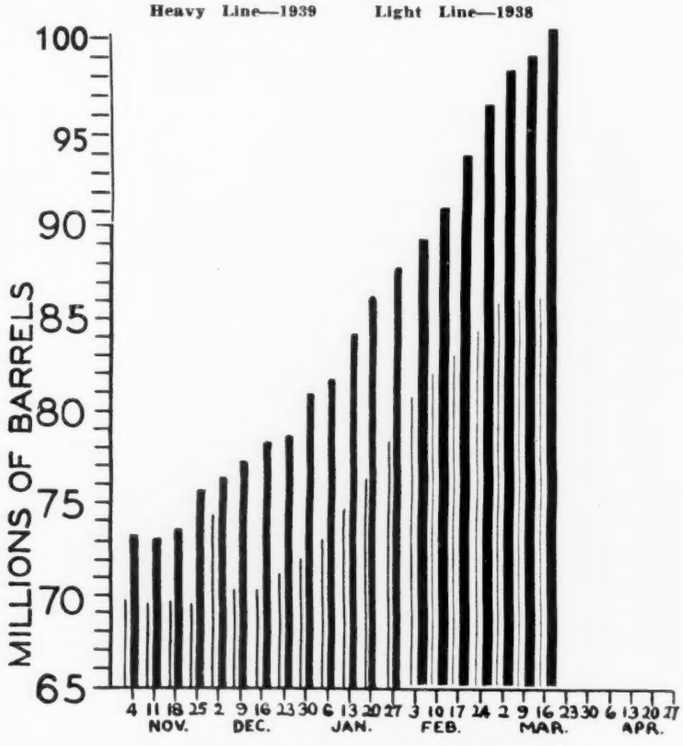
(Thousands of Bbls.)

Grade or Origin	Feb. 24	March 2	March 9	Change from March 2
Pennsylvania grade	4,434	4,391	4,389	— 2
Other Appalachian	1,340	1,328	1,326	— 2
Lima-Michigan	1,512	1,613	1,663	+ 50
Illinois-SW Indiana	17,897	17,789	18,396	+ 607
Arkansas	2,961	3,212	3,116	— 96
Kansas	8,016	7,989	7,973	— 16
Louisiana	11,417	11,395	11,473	+ 78
Northern	3,732	3,818	3,865	+ 47
Gulf Coast	7,685	7,577	7,608	+ 31
New Mexico	6,792	6,898	6,632	— 266
Oklahoma	61,436	61,854	61,869	+ 15
Texas	69,475	71,763	73,152	+ 1,389
East Texas	15,520	16,716	16,905	+ 189
West Texas	14,770	14,904	16,007	+ 1,103
Gulf Coast	16,827	17,342	17,584	+ 242
Other Texas	22,358	22,801	22,656	— 145
Rocky Mountain	17,418	17,388	17,384	— 4
California	36,180	36,452	36,568	+ 116
Foreign	1,958	2,054	1,821	— 233
Total U. S. refinable	240,836	244,126	245,762	1,636
Heavy in California	13,372	13,362	13,292	— 70

*As Compiled by U. S. Bureau of Mines.

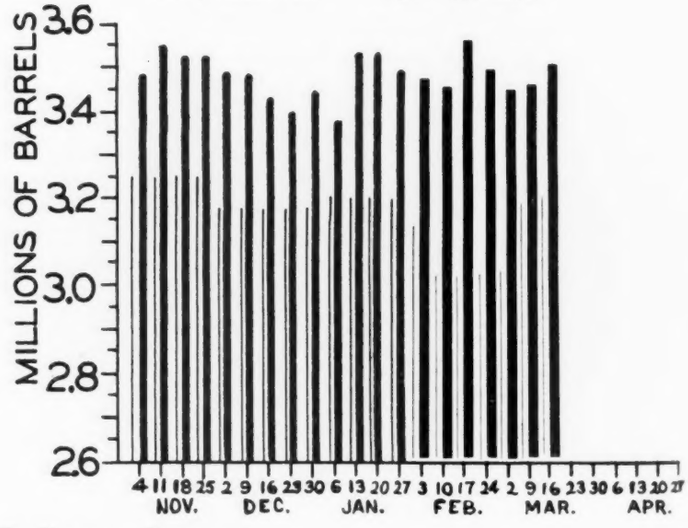
Total U. S. Motor Fuel Stocks

Heavy Line—1939 Light Line—1938



Daily Average Crude Runs to Stills

Heavy Line—1939 Light Line—1938



A. P. I. Weekly Refinery Report

(Figures in Thousands of Barrels of 42 Gallons Each)

Districts	Daily Average Crude to Stills Week Ended Mar. 16	Mar. 9	Per Cent of Reporting Capacity Operated Week Ended Mar. 16	Mar. 9	(a) Gasoline Production Week Ended Mar. 16	Mar. 9	Stocks Total Finished & Unfinished Motor Fuel (b) Week Ended Mar. 16	Mar. 9	Stocks of Gas Oil & Distillates At Terms. At Refineries Week Ended Mar. 16	Mar. 9	At Terms. Trans. Pipelines Week Ended Mar. 16	Mar. 9	Stocks of Residual Fuel Oil At Terms. At Refineries Week Ended Mar. 16	Mar. 9	At Terms. Trans. Pipelines Week Ended Mar. 16	Mar. 9
East Coast	576	568	93.7	92.4	1,627	1,572	20,977	20,111	2,052	2,326	3,973	4,162	3,164	3,418	4,800	4,660
Appalachian	125	105	86.2	72.4	440	363	3,959	3,902	267	239	154	145	639	639		
Ind., Ill., Ky.	552	513	94.4	87.7	2,007	1,976	17,659	17,020	2,278	2,259	252	264	2,880	2,881	11	12
Okla., Kans., Mo.	251	277	73.4	81.0	(c)906	(c)894	8,812	8,845	1,067	1,107	24	28	1,920	1,965		
Inland Texas	115	107	72.3	67.3	482	463	2,056	2,100	266	266			1,356	1,459		
Texas Gulf	839	856	88.3	90.1	2,396	2,531	16,424	16,556	2,536	2,336	445	523	5,492	5,380	270	231
La. Gulf	195	122	77.1	69.7	311	399	2,943	3,014	597	708	26	33	727	748	239	252
No. La., Ark.	42	42	76.4	76.4	127	123	681	686	179	178	11	17	451	443		
Rocky Mt.	42	37	65.6	57.8	231	210	1,766	1,714	142	146			534	506		
California	473	463	63.5	62.1	1,310	1,382	18,344	18,539	7,177	7,194	1,989	1,979	56,263	56,338	22,812	22,910
Total Reporting	3,150	3,090	82.1	80.6	9,837	9,913	93,621	92,487	16,561	16,759	6,874	7,151	73,426	73,777	28,132	28,055
U. S. Total (d)	3,500	3,450			11,372	11,460	100,616	99,397	17,201	17,409	6,874	7,151	75,426	75,787	28,132	28,055
U. S. Total 3-16-39 (d)	3,191				10,655		86,332		19,142		8,126		80,346		30,370	

(a) Includes straight-run, cracked and natural blended.
(b) Includes stocks at refineries, in bulk-terminals, pipe lines and in transit.
(c) 12% of reporting capacity in this district did not report gasoline production.
(d) Estimated, U. S. Bureau of Mines basis.

Refining Technology

INCLUDING INTERNATIONAL PETROLEUM TECHNOLOGY

J. C. CHATFIED, Managing Editor

DURING the past five years Mid-Continent refiners have increased their yield of gasoline from a barrel of crude an average of a little more than 0.5% per year. In 1934 the yield was 50.2% of crude oil run to stills and in 1939 it was 53.29% of crude.

In terms of gallons per barrel the increase in gasoline yield was 1.27 gallons in the five year period, from 21.01 gallons per barrel of crude in 1934 to 22.38 gallons in 1939.

The average price of regular gasoline in Oklahoma in 1939 was about the same as in 1934, in the vicinity of 5 cents per gallon. The increase in gasoline yield from year to year gave the Mid-Continent refiner an average of about 1 cent per barrel more margin to work with each year. Crude runs to stills in the Mid-Continent total about 200,000,000 barrels per year. The improved refining technique thus has meant an average of around $2,000,000 per year each year since 1934 or roughly $10,000,000 in 1939 over 1934 to cover any increased costs. An article in this issue shows yields and other factors which make up the N.P.N. Refinery Index, a calculated margin which the typical Mid-Continent refiner has to cover transportation and refining costs and profit.

has increased the construction of asphalt roads tenfold in

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The urge to increase yield and make a greater profit is a powerful stimulus in the building of new processing equipment. But against that urge there is a deterring factor brought about by the rapid rate of discovery of process improvements.

In his annual letter to the stockholders Paul G. Blazer, president of Ashland Refining Co., exemplifies this. "It has appeared advisable," he wrote, "to postpose our modernization program pending further study of important developments which are taking place in refinery processes. It is not likely that the 'octane race' between the different oil companies will stop at present levels, and thus it appears desirable to delay as long as possible in the selection of the latest equipment to replace some of our older units."

Mr. Blazer points out to the stockholders that the company may be temporarily at some disadvantage in costs of competing with new motor fuels announced by a number of the larger oil companies.

On one hand there is the necessity to meet quality competition and the desire to increase yields. On the other there is the fear that someone may come along with a newer and better process or a cheaper anti-knock fluid which will tend to accelerate obsolescence.

In a recent article in NATIONAL PETROLEUM NEWS it was shown that the average lead content of Eastern "regular" gasolines has risen to 1.51 cc. per gallon and in Cleveland, Ohio, the lead content is 0.84 cc. now. When lead content reaches such a level the addition agents represent the second largest cost in refining crude oil. The cost of lead to some refiners is about double the labor cost of refining.

So while some refiners feel that they should stand on the sidelines and watch developments for the present, others are pushing large construction programs as swiftly as possible. Net result for 1940 probably will be the largest building program in recent years.

★ ★ ★

Adoption of larger tires by the automotive industry the past ten years, Bernard E. Gray of the Asphalt Institute said recently in an A.S.T.M. paper.

Refinery sales of asphalt have not increased tenfold in that period even though 80% of the asphalt used on roads came from oil refineries. Other uses of refinery asphalts have fallen. In the 10-year period mentioned by Mr. Gray sales of asphalt by oil refineries have increased 40%. Crude runs have increased 15% in that period.

Prices have not reflected the larger production. The average price in 1936 was about the same as 1935 in spite of a 31% increase in demand. The 1938 price averaged $9.24 per short ton compared with $10.66 in 1937, about $10 in 1935 and 1936 and $11 in 1934.

Motor Cars, Trucks, and Aircraft To Have Better Fuels in 1950

ABSTRACT

Need for improved fuel knocking characteristics will be dependent upon future changes in engine design. Design changes will be relatively slow because of rate of car replacement in service and the logical rate of change in engine design should tend to become slower. Relatively small changes are expected in other motor fuel properties as compared with aviation fuels which are used in engines now having up to double the mean effective pressures of motor car engines.

Vapor lock difficulties at high altitude and volatility specifications are being studied now and may have some effect on the fuel of the future. Increasing use of specific hydrocarbons of low knocking tendency may constitute beginning of a trend toward use of pure compounds or simple mixtures. Inadequacy of diesel fuel tests show need for new test methods.

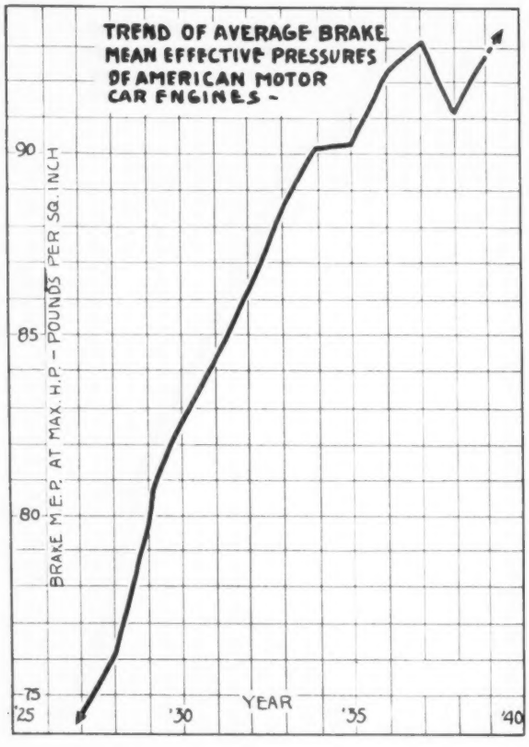

Fig. 1—The best idea of the logical trend in demand for octane number improvement can be obtained by an extrapolation of this curve showing the increase in average mean effective pressures for automotive engines during the past 13 years.

THE "technical need" for improved fuel knocking characteristics will take place rather slowly even though the possibilities of designing engines for further increases in specific engine output are very great when using fuels of increased knock rating. This is the view taken by Dr. D. P. Barnard and A. H. Fox, Standard Oil Co. (Ind.), in a paper presented by the former at the Spring meeting of the American Society for Testing Materials in Detroit, March 6.

In support of this conclusion it was pointed out that there is a comparatively slow rate of car replacement in service and the logical rate of change in engine design should tend to become slower. The paper was presented to summarize trends in the important properties of the principal volatile liquid fuels and to give reasons for the changes most likely to occur in the coming decade.

The best idea of the logical trend in demand for octane number improvement in motor fuel can be obtained by an extrapolation of the curve in Fig. 1 which shows the increase in average mean effective pressures for automobile engines for the past 13 years, Barnard said.

Discussing the various tests for motor fuel, he said the present standardized test for octane number, known as the ASTM-CFR method, is reliable and "can meet the demands for control and specification procedure for some time to come (unless yearnings for more optimistic values dictate the use of some other method)."

Considerable importance was attached to the 90% evaporated point, the trend of which is shown in Fig. 6. He said it is entirely impossible to make a quantitative prediction in its trend but that qualitatively there is expected to be "only a slight trend toward the general distribution of motor fuels having 90% points much lower than those now prevailing.

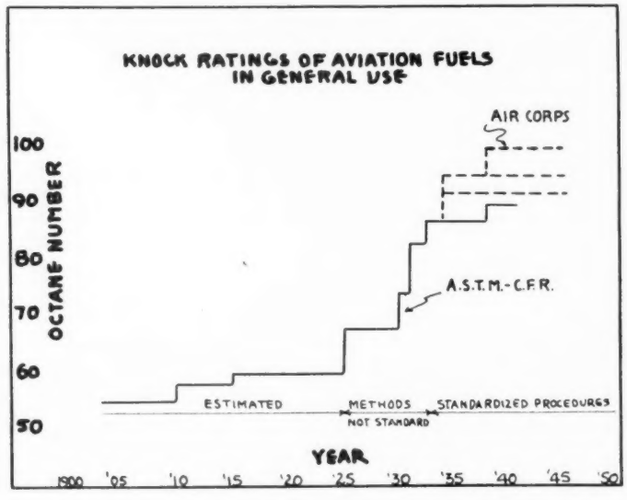

Fig. 2—Knocking characteristics of aviation fuel were not regarded as particularly important until after the supercharger had come into general use

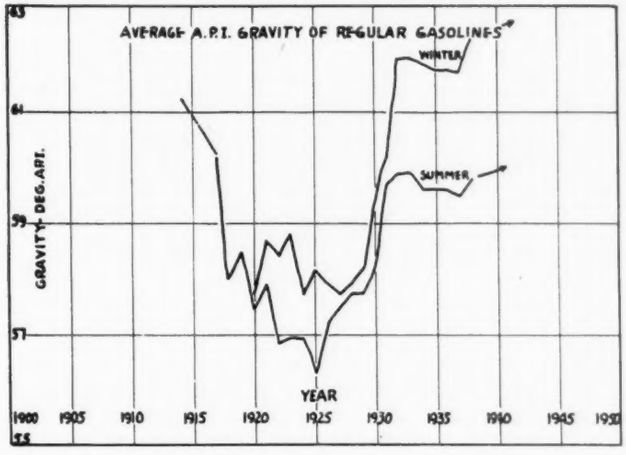

Fig. 3—Changes in A.P.I. gravity of regular gasolines have been small since the big jump between 1929 and 1933

By and large it is felt that any actual performance improvements to accrue from reduction in the 90% point will be small in comparison with both increased manufacturing difficulties and decreased mileage in service."

No particular change in vapor lock requirements are indicated either in current car designs or changes in the operating conditions of existing vehicles, Dr. Barnard said. "Accordingly, it is reasonable to expect that for the next few years there will be little if any change in the vapor pressures of summer gasoline, although it would be entirely logical for winter gasolines to approach more closely the 12-pound practical limit for fuels used at low atmospheric temperatures." The trend of vapor pressures is shown in Fig. 8. It is interesting to note in this chart that actual practice falls below the limits permitted in A.S.T.M. Specification D-439-37T.

Gravity First Gasoline Yardstick

Dr. Barnard prefaced his discussion of trends in fuel properties by showing what has taken place since 1900. He pointed out that during the early history of the petroleum industry it was common practice to define and evaluate gasoline quality solely on the basis of specific gravity. Not until 1913 when motor vehicle registrations passed the million mark did any other property of motor fuel achieve importance. The general importance of initial and end point was then recognized but no tentative standard tests were recognized until after 1920 when interest shifted from mere reliability of operation to refinements. About this time it

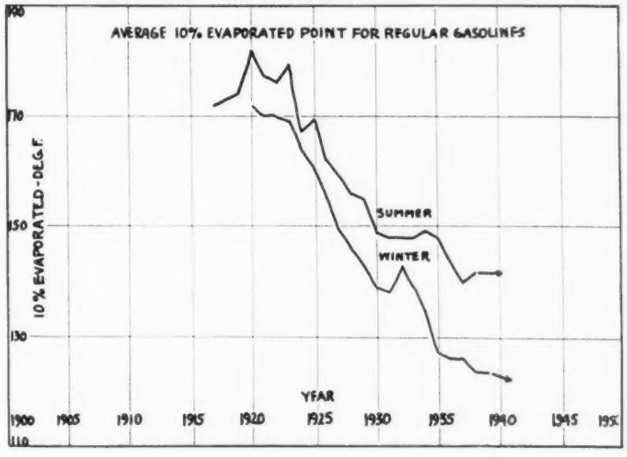

Fig. 4—Ten per cent evaporated point of regular gasolines has dropped almost every year for 15 years

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REFINING TECHNOLOGY
March 20, 1940

Future of aviation and diesel fuels is more likely to be subject to change in the next decade than motor fuel although gradual increases in mean effective pressures in engines will follow availability of higher octane fuels for motor cars R-82

Additives inevitable for lubricating oils and will have the same acceptance as soaps in chassis lubricants R-88

Paving asphalt consumption multiplies by ten in past decade and is a major factor in raising total asphalt demand 40% during this period R-91

John W. Newton is vice president of Magnolia Petroleum Co. and general manager of four refineries, including one of America's largest. He joined Magnolia at Beaumont, Texas, as a routine test chemist 25 years ago R-92

The first high school to offer an oil vocational course is preparing 50 students this year for oil industry jobs R-100

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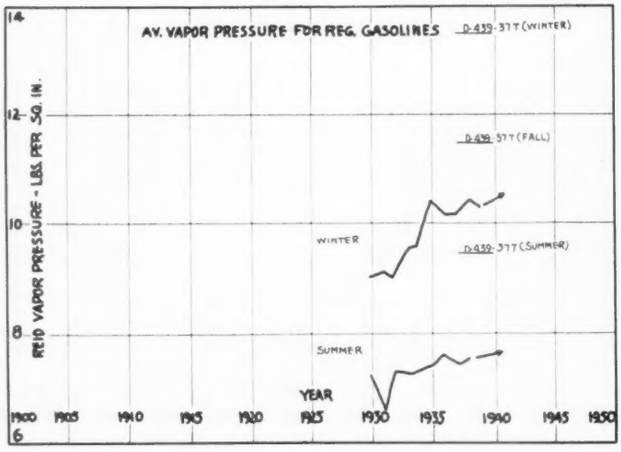


Fig. 5—It is interesting to note that actual practice falls below the limits permitted in A.S.T.M. Specification D-439-37T

was recognized that spark knock was standing in the way of engine development.

The development of the self-starter and particularly winter use of cars demanded front-end volatility indicated by the 10% evaporated point and elimination of corrosive conditions called for development of tests for sulfur. These tests reached the tentative acceptance stage long before any test for anti-knock properties which gained attention shortly after 1920. Dr. Barnard's audience, being largely outside the petroleum industry, did not fully appreciate the humor of his remark at this point that "the problem of designing a knock test engine was regarded at that time without any particular qualms, it being considered that a simple unit of low cost would meet all requirements."

The vapor lock problem coming along in 1929, was responsible for the standardization of the Reid vapor pressure test the following year. The necessity for controlling gum-forming tendency had been recognized shortly before this time but no tentative standard test was approved until 1934. The need for a general specification for motor gasoline had been recognized as early as 1931. It was not until 1937, however, that the A.S.T.M. tentative specification was adopted.

Aviation Fuel Knock Made Important by Supercharger

During the last European war it became obvious that specifications would be required to distinguish between motor gasolines and aviation fuels in which higher volatility and high performance were necessary and for which intake air and mixture heating were impossible. Knocking characteristics were not regarded as particularly important until after the supercharger had come into general use, Barnard said. Then knocking problems became quite critical and now constitute the most important single factor in aviation fuel quality. The development of aviation fuel knock resisting properties is shown in Fig. 2.

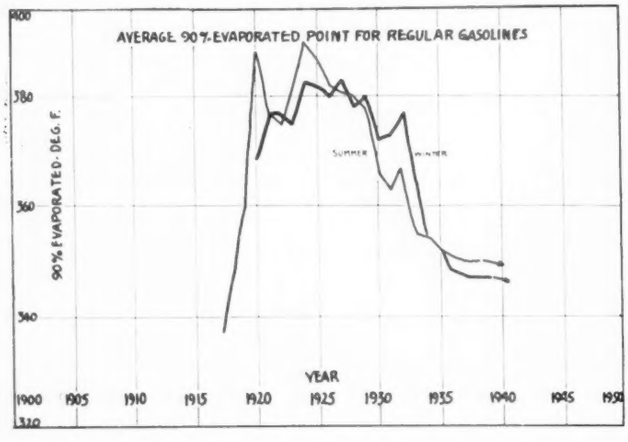


Fig. 6—It is difficult to predict probable further changes in 90% point because of its complex relation to knocking characteristics, low temperature vaporization, and heating value

It was pointed out that the mean effective pressures of service type aircraft engines have risen from about 125 to well over 200 pounds now regularly employed in take-off operations. Not all of this improvement has been the direct result of octane number increase, he said. However, so much is to be gained from increases in specific output and fuel economy that the only conclusion which can be reached is that the demand for increased knock ratings will continue to be just as active as the ability of the aircraft engine builder to develop power plants of improved performance.

The next step must go beyond the limits of the present octane scale. Although scale limitations are not so important, it was pointed out that methods for testing high knock rating fuels must be developed. Dr. Barnard said, "It appears that the only observation which can be safely made at this time is that aviation fuels of decreased knocking tendency well beyond that now represented by the so-called 100-grade will be required."

AVERAGE mean effective pressures in motor car engines have not reached 100 pounds yet, as shown in Fig. 10, but experimental pressures in small cylinders have run as high as 600 psi. with fuels other than those from petroleum. This may be taken to indicate, however, Barnard said, that during the next few decades there will be a continued increase in specific output from aircraft engines and that continued improvements in the anti-knock properties of aviation gasolines will be required.

As far as vapor lock is concerned in aircraft engines there are some indications that operations at very high altitudes may result in a lower vapor pressure requirement for fuels to be used under such conditions. At the moment, it does not appear that all of the problems involved in such operations can be solved through the route of lowered Reid vapor pressures. It is fairly certain that such an attempt would lead to a product differing radically from gasoline of the current type, he concluded.

Quantitative predictions of changes in volatility specifications are out of the question until results of a series of full-scale tests have been completed. Broad use of iso-octane of higher boiling point than required in aviation gasoline has made it impossible to meet 50% point requirements contained in most military and commercial specifications.

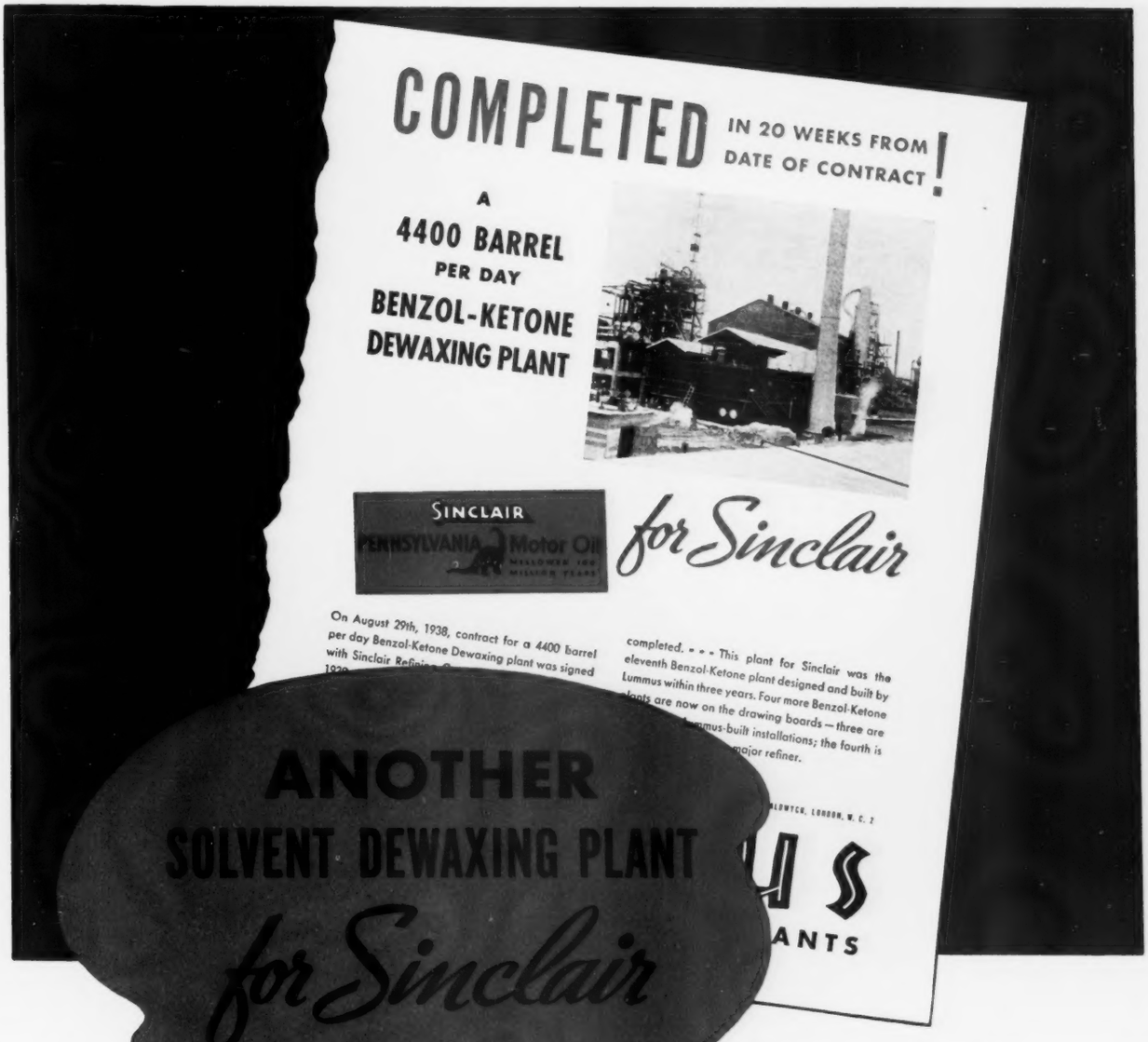
Pure Compounds for Aviation Fuel

Since the "quest for higher knock ratings must require the increasing use of specific hydrocarbons of low knocking tendency, this must result in a general trend toward aviation fuels approaching the composition of pure chemical compounds or very simple mixtures. Accordingly, distillation curves of the time honored variety no longer will be possible. . . . . As the situation now exists further substantial improvements in fuel characteristics must in no small measure depend on revisions in volatility requirements which will permit the use of hydrocarbons of lowest knocking tendency. . . . . It would appear that the general limit to maximum fuel volatility is now obsolete as it has become general practice to employ carburetor air intake preheat and carburetors of non-icing designs. It should be dropped as soon as possible as it tends to restrict the use of certain fuel constituents of low knocking tendency."

The acid heat test, introduced to overcome gum deposition, also has no close relation to present service conditions and should be dropped to remove restrictions in the use of certain otherwise satisfactory fuel constituents.

Brief reference was made to high flash fuels in which it was pointed out that if a minimum flash point of 105° F., for example, is to be maintained the initial boiling point must of necessity be above 300° F.

Domestic furnace oils were given some attention. "Prob-


COMPLETED
IN 20 WEEKS FROM DATE OF CONTRACT!
A
4400 BARREL
PER DAY
BENZOL-KETONE
DEWAXING PLANT
SINCLAIR
PENNSYLVANIA Motor Oil
for Sinclair
On August 29th, 1938, contract for a 4400 barrel per day Benzol-Ketone Dewaxing plant was signed
completed. • • • This plant for Sinclair was the eleventh Benzol-Ketone plant designed and built by Lummus within three years. Four more Benzol-Ketone
ANOTHER
SOLVENT DEWAXING PLANT
for Sinclair

AS a result of the successful performance of a 4400 barrel per day Benzol-Ketone Dewaxing plant—designed, built and completed by Lummus within 20 weeks from date of contract — Sinclair has selected Lummus to build another Benzol-Ketone Dewaxing plant for the Sinclair, Houston, Texas, refinery. » » » This plant for Sinclair is the nineteenth Benzol-Ketone plant designed and built by Lummus within the last four years.

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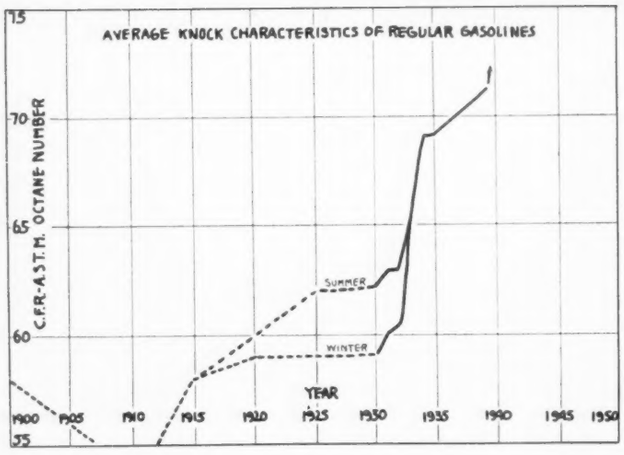


Fig. 7—No halt in sight in the upward climb of octane ratings

ably the best prediction as to trends which can be made at this time would be that the tendency is for Grades 2 and 3 to become identical with what is now understood to be the Grade 2 product. . . . . Furnace oils are primarily by-products and, to date, no special tests for their performance characteristics have been developed. Their continued successful use may require, however, a direct method for determining soot-forming tendencies."

Diesel Cetane No. Inadequate

Five principal and important properties of high speed diesel fuels were named. Viscosity was said to be tending to become less and the authors believe viscosity values for high speed diesel fuels should be expressed in centistokes and an attempt made to standardize such viscosity limits on this scale.

It was said to be questionable if the present procedure for determining ignition quality (cetane number) is adequate in completely evaluating ignition quality. The cetane values were said to be primarily a measure of "ignition lag" and do not predict the "starting ease" of all fuel types. It may eventually become necessary to express ignition quality by both "ignition delay" and "starting" methods.

Volatility was said to be closely associated with smoking tendency and fuel economy and will constitute the primary basis for future fuel classifications. Pour and cloud points, important at low temperatures, are felt to be insufficient in evaluating the suitability of fuels for low temperature operation. Relative "filterability" of fuels is believed to be a desirable standard for which a procedure could be agreed upon.

Since diesel fuels will be primarily characterized by cetane requirements, it was predicted that these will probably increase about 10 units above the present average. Dr. Barnard said there is a growing need for standard specifications for high speed diesel fuels similar to those now in use for motor gasoline, aviation gasoline, and domestic furnace oils.

Plant Operators Have Full Day At Natural Gasoline Meeting

The nineteenth annual convention of the Natural Gasoline Association of America at Hotel Tulsa, Tulsa, May 15-17, will again devote an entire day to the "Operating Kinks" session for field and plant men of the industry, according to William F. Lowe, secretary.

Originally begun as an experiment to stimulate discussion of problems by operating men, this program feature has become one of the principal attractions of the convention for plant superintendents and field foremen as well as for engineers and executives. The session takes the form of a prize contest in which operating men compete with their original ideas for doing any job within their province in a better, cheaper or safer way. A total of $165 is distributed in prizes.

In supporting the suggestion to continue the contest again this year, George P. Bunn, Phillips Petroleum Co., and president of the association, asserted that its value had increased every year since its inception. "This is not only true of the quality of the entries, but in the presentation and discussion," he stated. "Five years ago when we set aside but two hours for the first "Kinks" session, there were only 31 entries and not more than 75 men attended the discussions. Last year there were 105 entries and the huge ballroom was full of men listening to the presentations and taking notes for an entire day. No finer opportunity has ever been given to field and plant men to demonstrate their ability to improve methods, tools and operations to the benefit of their companies and the industry as a whole. Natural gasoline manufacturers will be well repaid by sending their plant and field men to Tulsa for at least this portion of the convention program."

The operating ideas submitted are divided into four classes by the judges and prizes of $15, $10, $5, and $3 are awarded in each class for the outstanding entries. A grand prize of $25 is awarded for the most valuable offering in all classes. Judging will be on a basis of practical application and need, labor, time and money saving features, and originality. Almost all "Kinks" are concerned with special tools, new or easier methods, safety devices, short cut operations, unique applications, etc., and may apply in any one of the following classifications:

A. Operation or maintenance of engines, compressors, boilers, turbine, electric motors or generators.

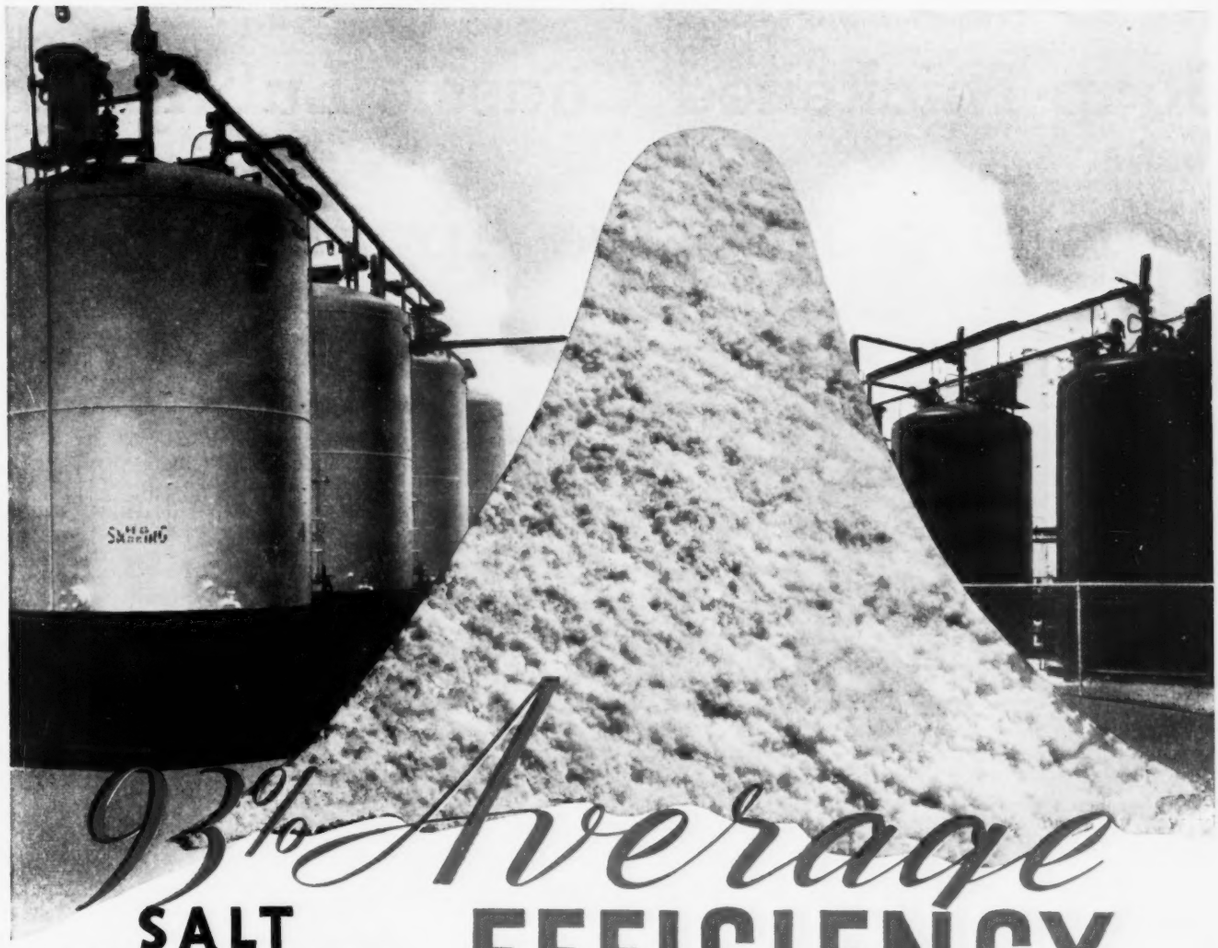
B. Volumetric measurement, metering; temperature, pressure, volume or liquid-level controlling; laboratory equipment or methods; loading or handling of plant products.

C. Distillation; fractionation; absorption; or treating of gas, gasoline or oil; general processing; storage of gasoline.

D. Field operations, pipe line, general maintenance, accounting, and record keeping. Any other phase of the natural gasoline industry not covered in the above classes.

The convention program committee consists of H. W. Harts, Warren Petroleum Corp., Tulsa, chairman; W. F. Fulton, United Gas Pipe Line Co., Houston; J. R. Jarvis, Lone Star Gasoline Co., Dallas; G. W. McCullough, Phillips Petroleum Co., Bartlesville; C. R. Williams, Continental Oil Co., Ponca City; D. M. Wolfe, Standard Oil Co. of Calif., San Francisco; and R. A. Worley, Parade Gasoline Co., Shreveport. Following are rules for submission of entries in the contest:

1. Any employee of a natural gasoline manufacturer may submit one or more "operating Kink" ideas.
2. Permission of the employer must be secured before any idea is submitted.
3. Each idea must be submitted in writing and two copies of each must be presented in the form designated on the "Operating Kink" blanks which may be secured from the Natural Gasoline Association of America, 923 Kennedy Building, Tulsa.
4. One clear drawing, in ink with clear lettering, or distinct photograph or blueprint may be submitted with each entry, though none of these should exceed 12 inches by 14 inches in size. Larger drawings are difficult to reduce for the making of lantern slides.
5. Not more than five minutes' time will be allotted for the explanation of any single entry.
6. The originator of the kink, although urged to do so, need not be present to explain his idea.
7. Prize awards are to be made by a committee of gasoline plant operators, and their decisions will be final.
8. All "operating Kink" entries should be in N.G.A.A. offices by May 5, 1940, in order that the judges may have ample time to study and classify the entries before the meeting date.



93% Average SALT EXTRACTION EFFICIENCY

An accurate check recently disclosed that the total salt content of the crudes charged to twenty-five Petreco Electromatic De-Salting Plants during one month's operation amounted to 647,000 pounds. Of this volume of soluble material approximately 93%, or 600,000 pounds, was removed by the Petreco process; in addition to an appreciable amount of sand, drilling mud and other insolubles such as calcium sulfate.

This average overall efficiency is surprisingly high in view of the number of plants involved, the wide range of crudes being handled, and also the fact that the plants are located in widely separated districts extending from New Mexico to Louisiana and from Michigan to Texas.

From the standpoint of efficient salt extraction and cost per barrel of crude run, as well as the elimination of serious refining difficulties and operating expenses, the Petreco process repeatedly has proved to be the most satisfactory solution to the salt problem. Refiners having salt problems are invited to write for detailed information.

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Soap-Thickened Chassis Lubricant Is First Additive Application

JUSTIFYING the use of chemical additives in lubricating oils in a discussion of "Developments in Lubrication", J. P. Stewart*, Socony-Vacuum Oil Co., reminded members of the American Society for Testing Materials meeting in Detroit, March 6, that the first example of an automotive lubricant cut to fit a given need by the addition of a substance foreign to petroleum was chassis lubricant. Chassis lubricant was first produced by the addition of a soap to fluid oil to provide the plasticity necessary to minimize leakage.

He said engine oil development is unfolding in a manner similar to that of gear lubricants which have been made to withstand loads and rubbing speeds far in excess of those formerly encountered in the field. While speaking of hypoid lubricants and their recent specialization into passenger car and truck types, it was brought out that "fortunately under present conditions at least, certain compounds of the organically combined sulfur chlorine type, work equally well under both conditions of service."

"Historically, the use of refining supplements for lubricating oils might be traced back to the disclosure of Wells and Southcombe in 1920 of the effect of the addition of a small percentage of a fatty acid on the oiliness characteristic of lubricating oil," Stewart said. "Interesting as was this disclosure, its practical significance was not apparent due to the fact that internal combustion engine design of that time and for some years thereafter was not such as to require oiliness beyond that inherently present in well-refined lubricating oil."

*Paper prepared by Stewart, R. C. Moran, and C. M. Reiff.

Table 1

Pour Point Control

	S.A.E. 20 Oil			S.A.E. 30 Oil		
	Santo-pour	Para-flow	Additive "C"	Santo-pour	Para-flow	Additive "C"
Oil — No additive	+20F.	+20F.	+20F.	+25F.	+25F.	+25F.
Oil + ½% additive	—20	—20	—15	— 5	— 5	— 5
Oil + ⅛% additive	—20	—20	—15	—20	—20	—20
Oil + ¼% additive	—20	—20	—20	—20	—20	—25
Oil + ½% additive	—20	—20	—20	—30	—30	—25

Table 2

Viscosity Index Control

		V.I. Increase	
	Per cent Additive	Para-tone	Additive "C"
S.A.E. 20 Oil	1.0	2.0	2.2
S.A.E. 30 Oil	1.0	4.6	5.3
S.A.E. 60 Oil	1.0	2.3	2.5

Table 3

Bearing Corrosion Control Underwood Test Data

	N.N.—Final	Loss in Bearing Weight
S.A.E. 10 Oil — No additive	4.0	0.931 gms.
S.A.E. 10 Oil + 1% Santolube 31	0.05	+0.010 gms.
S.A.E. 10 Oil + ½% Additive "C"	0.25	+0.001 gms.

Table 4

Sludge Characteristics by Laboratory Oxidation Tests

	Sludge—3 Days	
Lubricant	Indiana Oxidation Test	Socony Oxidation Test
S.A.E. 10 Motor Oil	24 mgs.	3%
S.A.E. 10 Motor Oil + 1% Additive "C"	210 mgs.	20%

Table 5

Performance Characteristics of Additive "C" Six Cylinder Automobile Test Engine

Hours	S.U.V. 100 F.	S.U.V. 210 F.	N.N.	Naphtha Insolubles	Chloroform Solubles
			S.A.E. 10 Motor Oil		
New	162.8	45.3	0.01	....	....
..	359.0	..	11.2	0.44	..
16 (A)	524.0	..	18.0	0.88	0.48
			S.A.E. 10 Motor Oil + Additive "C"		
New	179	46.6	0	....	....
8	184	....	0.34	....	....
16	196	....	0.32	....	....
24	208	....	0.33	0.39	0.03
32	218	....	0.44	....	....
40	209	....	0.41	....	....
48	205	....	0.44	0.20	0.10
56	210	....	1.07	....	....
67	225	....	1.32	0.51	0.12

Note: (A)—Test stopped at 16 hours to prevent sudden sludge deposition with possible damage to engine.

The practical importance of additives of the supplementary type became evident in 1935 with complaints of corrosion of hard alloy bearings, it was stated. Investigation of these complaints revealed formation of small concentrations of organic acidity which had not been detrimental to babbitt. "Furthermore, the more paraffinic the crankcase oil the greater was the tendency towards bearing failure. Realization that the solution of this problem would have to be an additive if the demonstrated desirability of high paraffinicity in crankcase lubricants were maintained, the research staff was called upon for the development of such a compound." The result of this call was the development of organic derivatives of phosphorus known as Santolube.

In view of the uncertainty in the performance of oils of the highest quality obtainable by the best refining Socony-Vacuum engineers were convinced that the time was fast approaching when further advance in internal combusion engine design would be dependent upon additives for producing lubricants of the required stability, particularly with respect to sludge and lacquer formation. It was pointed out that others undoubtedly came to the same conclusion because of the considerable activity indicated by the patent and other literature.

Mr. Stewart said Socony-Vacuum had carried out a "very intensive program of research on the development of additives for controlling sludge and lacquer formation of crankcase lubricants . . . . From this work has developed a remarkable type of additive that is effective not only for controlling acidity, sludge and lacquer formation, but also pour point and viscosity index." This material was de-

Table 6

Performance Characteristics—Additive "B" Single-Cylinder Aviation Test Engine

Hours	Gravity, deg. A.P.I.	Pour Point, deg. Fahr.	Flash Point, deg. Fahr.	Fire Point, deg. Fahr.	S.U.V. 100 F.	S.U.V. 210 F.	Color Lov.	N.N.	Per Cent Ash	Carbon Residue	Naphtha Insolubles
					100 Sec. Aviation Oil						
New	26.6	10	520	580	1203	96.9	37	0.01	0.01	0.3	...
10	....	..	...	...	....	98.6	..	0.3	....	...	0.09
20	....	..	...	...	....	103.1	..	0.4	....	...	0.10
30	24.7	5	480	575	1515	109.3	> 750	1.0	0.09	1.0	0.14
					100 Sec. Aviation Oil With 1% Additive "B"						
New	26.4	—5	520	575	1224	98.9	65	0.1	....	...	....
10	....	..	...	...	....	90.8	..	0.2	....	...	0.16
20	....	..	...	...	....	90.8	..	0.2	....	...	0.16
30	....	..	...	...	....	99.7	..	0.3	....	...	0.28
60	....	..	...	....	....	106.7	..	0.6	....	...	0.27
80	....	..	...	....	....	110.5	..	0.6	....	...	0.29
100	24.7	5	505	585	1534	112.4	> 750	0.8	0.42	1.7	0.33

fined as "both a refining adjunct and a refining supplement of the most unique multifunctional properties."

Without stating just what this material is, it was said to be an extremely complicated organic base which, in spite of its complexity, lends itself readily to directive chemical change whereby the various multifunctional characteristics can be altered at will with considerable latitude. "For example, its pour depressing effectiveness can be increased and its viscosity improving action decreased, and vice-versa. without significantly affecting its action in controlling acidity, sludge and lacquer formation.

Tables 1, 2, and 3 show that additive "C", as the material is known, compares favorably with other additives in controlling pour point, viscosity index and bearing corrosion. Oil stability was said to be determinable only by engine performance as illustrated by test results in Table 4 and 5. Laboratory oxidation tests were entirely contrary to engine tests. Table 6 shows performance results for an aviation engine, and Table 7 reflects a greatly reduced rate of piston ring wear with the inhibited oil. Direct evidence of the corrosion inhibiting action of such additive to the corrosion of hard alloy bearings is given in Table 8.

Table 7

Bearing Corrosion and Wear Single-Cylinder Aviation Test Engine

Hours at Full Power	Wt. Loss All Compression Rings—Grams— Total	Per Hour	Big End Bearing —Wt. Loss—Grams— Total	Per Hour
	100 Sec. Aviation Oil			
30	0.725	0.024	0.200	0.006
	100 Sec. Aviation Oil + Additive "B"			
100	0.913	0.009	0.209	0.001

Table 8

Bearing Corrosion

Oil	Bearing Weight Loss in Gms. at 20 hrs.	30 hrs.	40 hrs.	50 hrs.
Base Oil	0.28	0.74	....	....
Base Oil + 1% Additive "C"	0.17	0.20	0.25	0.33

The selection of the proper inhibitor for a given crankcase oil is not a simple matter, it was pointed out, since oils of identical physical characteristics but derived from different crudes vary in their response to a given inhibitor. Furthermore, a given oil will vary in its response to inhibitors of the same generic type depending upon the operating temperatures to which the oil is subjected in service.

Based on experience in additive behavior in actual engines, it was concluded that "the ideal oil is one which has received the most suitable refining and is then fortified with a specific additive to provide a finished lubricant having the optimum characteristics for the type of service for which the oil is intended. The phrase 'oils are made, not found' appears still to be true; indeed 'tailored' might be a more descriptive term," he concluded.

Fire Protection in Refineries

The second edition of the American Petroleum Institute's "Fire Protection in Refineries," published recently by the National Fire Protection Association, is a revised and expanded account of fire protection and fire fighting procedure covered in the first edition of 1933. The second edition has been made a more readable treatise by improvement in arrangement of material and the use of larger type face which adds a third more pages to the book. The new edition contains 106 pages compared with 73 in the old edition.

Probably the most completely revised section of the book is that dealing with foam extinguishment, which is still considered "the only practicable means thus far developed for extinguishing a large oil fire." Nearly twice as much discussion of foam is included in the new edition as in the old and three times as much illustrative drawings and pictures of foam equipment are included in the appendix.

The section on refinery layout has been rewritten and broken up under numerous headings for easy reference. Considerable new material has been added to various subjects under the head of operating structures and facilities. Tank design is given more attention and less attention is given tank spacing. Material on fire walls and dikes is rewritten and additions have been made to cover truck loading racks with particular reference to racks for gasoline and liquefied petroleum gases. New material is included also regarding protection around barrel and can filling operations.

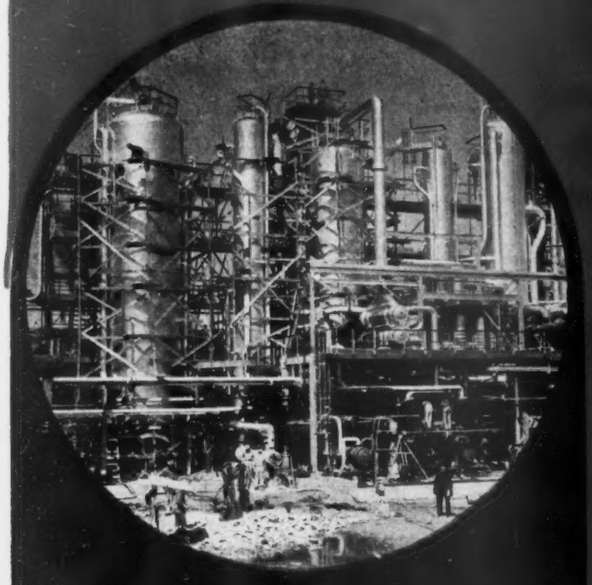
Employe rules and regulations have been expanded somewhat with separate treatment of normal and emergency operations and additional information regarding operations while repairs are in progress is given.

It is noticeable under the head of Fire Control and Extinguishment that the first subject considered in the new edition is first-aid fire appliances, reference being made to the National Board of Fire Underwriters booklet on this subject. One of the subjects rewritten under this head is that dealing with hydrants in which a more detailed discussion is given. New emphasis is given to the value of gasoline or diesel engine driven fire pumps as stand-by power, particularly in case of failure of steam or electric supplies.

There is no change under the heads of fire-fighting organization and fire-fighting practices which occupy about 19 pages of the new edition. The appendix, however, has much new material in pictures and illustrative drawings. There are a few changes and additions to report forms and tabular material. The fire stream table now includes data for ¾ and ⅞-inch nozzles.

The new edition is available at $1 from the N. F. P. A., 60 Batterymarch St., Boston.

The Successful Operation of Refineries Depends Upon Many Individual Factors—



The selection of the correct processes, and the design and physical characteristics of the processing equipment play equally important parts in assuring greater and longer operating success for any refinery.

Plants incorporating substantially all the basic and most advanced processes and capable of producing a wide variety of marketable products from available raw materials are obtainable through this organization.

The M. W. Kellogg Company has available in its own organization all the highly specialized knowledge necessary to enable it to render refiners *complete service* in planning and constructing either a single unit or a complete refinery.

The Kellogg organization can give a refiner not only valuable assistance in solving his present problems but also in planning long-range developments for the future.

When new developments are being considered consult the Kellogg organization.

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Asphalt Consumption for Paving Increases Tenfold in Decade

ASPHALT consumption for streets, highways, and airports has multiplied by ten in the past ten years, it was brought out by Bernard E. Gray, chief engineer, The Asphalt Institute, in a paper on "Recent Developments in the Use of Asphalt for Transportation Purposes" before the Spring meeting of the American Society for Testing Materials, March 6 in Detroit. Consumption of asphalt for paving totaled 4,500,000 tons in 1939, Gray said. This represents 73% of total asphalt consumption. During this time 140 specifications for cut-back asphalts were reduced to 12.

The accompanying chart, presented by Mr. Gray shows how rapidly the mileage of state road systems of bituminous types has increased in the past 20 years. Such bituminous surfaced roads constituted over 80% of all surfaced roads in 1939, he said.

Significant to the increased use of asphaltic roads are "the almost universal use of balloon tires (which) has so reduced load concentrations that even though traffic volumes have increased greatly, the damaging effects of impact formerly experienced have now disappeared." Also among factors which Mr. Gray summarized as influences upon the more extensive use of asphaltic road materials are the following:

"Surface types (smooth riding) formerly in the higher cost class are now competing in the low cost field, while the quality of all types is markedly improved.

"The development of modern power equipment (for road making and asphalt mixing) with attendant low cost of operation has greatly extended the radius of economic haul of selected aggregates and mixtures, as well as manipulation on the roadbed.

"There is a definite trend toward use of plant mix types, because of lower plant costs and immediate use of road after placement."

Of most importance among new experimental uses of asphalt for transportation, Gray named asphalt ballast under railroad tracks. Experimental work has been done by the New York Central Lines in treating ballast to determine if by bonding and water-proofing the aggregate with asphalt a much longer interval may not be had between ballast renewal and refacing the track. Asphalt coated aggregate with a light but elastic seal appears to offer great possibilities, Gray said, in effecting economy of maintenance and a stronger track structure.

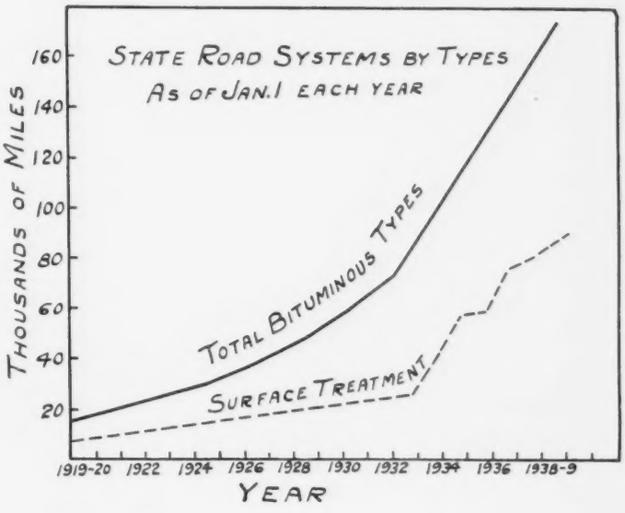


TABLE 1

New Specifications for Rapid Cure and Medium Cure Cut-Back Asphalts

(Adopted December 13, 1939)

Specification Designation	RC-0	RC-1	RC-2	RC-3	RC-4	RC-5	MC-0	MC-1	MC-2	MC-3	MC-4	MC-5
General Requirement:	The material shall be free from water and shall meet the following requirements when tested in accordance with the methods hereinafter enumerated.											
Flash Point (Open Tag.) °F.	.....	.....	80+	80+	80+	80+	100+	100+	150+	150+	150+	150+
Furol Viscosity at 77° F.	75-150	.....	.....	.....	.....	.....	75-150	.....	.....	.....	.....	.....
Furol Viscosity at 122° F.	.....	75-150	.....	.....	.....	.....	.....	75-150	.....	.....	.....	.....
Furol Viscosity at 140° F.	.....	.....	100-200	250-500	.....	.....	.....	.....	100-200	250-500	.....	.....
Furol Viscosity at 180° F.	.....	.....	.....	.....	125-250	300-600	.....	.....	.....	.....	125-250	300-600
Distillation:												
Distillate (per cent of total distillate to 680° F.)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
To 374° F.	15+	10+	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
To 437° F.	55+	50+	40+	25+	8+	...	25-	20-	10-	5-	0	0
To 500° F.	75+	70+	65+	55+	40+	25+	40-70	25-65	15-55	5-40	30-	20-
To 600° F.	90+	88+	87+	83+	80+	70+	75-93	70-90	60-87	55-85	40-80	20-75
Residue from distillation to 680° F. Volume per cent by difference	50+	60+	67+	73+	78+	82+	50+	60+	67+	73+	78+	82+
Tests on Residue from Distillation:												
Penetration 77° F., 100 g., 5 sec.	80-120	80-120	80-120	80-120	80-120	80-120	120-300	120-300	120-300	120-300	120-300	120-300
Ductility 77° F.	100+	100+	100+	100+	100+	100+	100+	100+	100+	100+	100+	100+
Per cent Soluble in Carbon Tetrachloride	99.5+	99.5+	99.5+	99.5+	99.5+	99.5+	99.5+	99.5+	99.5+	99.5+	99.5+	99.5+

Note: If penetration of residue of MC materials is more than 200 and its ductility at 77° F. is less than 100, the material will be acceptable if its ductility at 60° F. is 100+.

An Interview . . .

With a Chemist Who Manages One of America's Largest Refineries

TWENTY-FIVE years ago a young man was just finishing his second year as instructor in the chemistry department of Texas Agricultural and Mechanical College following the completion of his college work there, when an inquiry came to Dr. C. C. Hedges, head of the chemistry department, for a chemist to do routine analysis and testing in the laboratory of Magnolia Petroleum Co., Beaumont, Texas.

There were two young instructors in the department who were eligible for the job. One, who had the priority right to apply, was not interested. The other, John W. Newton, was so anxious to get this job that he did not wait a minute after his friend refused the opportunity. Newton went immediately to the telephone to get in touch with the late E. E. Plumly, who was then manager of refineries and who had sent in the inquiry.

Today, 25 years after tying up with Magnolia, John W. Newton is vice president and general manager of Magnolia Petroleum Co. with supervision over four refineries and is vice president of Magnolia Pipe Line Co.

Being a chemist first of all, Mr. Newton has always been fascinated by the chemical and engineering developments that have made oil refining an industry of chemical engineering and in his own organization has been a strong promoter of the most advanced and modern equipment. The installation of two Houdry catalytic cracking units during his two years as general manager with catalyst case charge capacity of 30,000 barrels per day makes the refinery second only to Sun's Marcus Hook refinery in catalytic cracking capacity.

Back in 1914 when John Newton went to Beaumont, the refinery consisted of about 50 shell stills of about 500 barrels capacity each, 16 coke stills, a small grease plant and barrel house. The capacity of the refinery was fairly large for those days, however, and daily crude runs were between 15,000 and 20,000 barrels.

To the refiner, chemistry was then just a tool to use in checking up on the quality of crude and refined products. To call petroleum products by their chemical names was about as familiar to refinery operators as botanical names for flowers to the average citizen. Refinery operators had names of their own making for various products, however. All gases, for example, were known then at the Beaumont refinery as "high life". Such terms were rather confusing to a young chemist who had associated this term only with carbon disulfide.

Two years after joining Magnolia the first tankers came up the Neches river to Beaumont. Before that time barges were required to take shipments down the shallow river to its mouth for the loading of tankers from storage there. Tank cars were also employed for this shuttle. The Vesta was the first vessel. In later years interest in the development of navigation and straightening of the Neches river became one of the many activities in which Mr. Newton takes a leading part as chairman of the Beaumont Navigation District committee and member of the Lower Neches Valley Authority.

In 1917, Newton was made chief chemist, succeeding S. J. Dalzelle. After holding this position two years he became assistant superintendent, a position he held for nearly 15 years. During this period E. E. Plumly had become vice president as well as general manager. He required an assistant so, in 1934, John Newton was chosen for that position. In February, 1936, two years later, Newton became assistant general manager of refineries under E. E. Swope who succeeded Plumly at his death. Mr. Swope died less than two years after Plumly in December, 1937, and Mr. Newton succeeded to his present position.

There is one interest that John W. Newton puts ahead of refining progress. This is partially summed up in his "hope to have the biggest bunch of friends among the men in overalls down in the plant." This interest makes it as easy for the man in overalls as for the chief engineer, to see the general manager. One of his prides is the younger group of men who have come into the technical laboratory and engineering departments. This group now represents 25 different colleges in 15 states, he quotes from his record book.

John Newton is a Texan and has been a Texan all his life. Born in Dallas, his parents moved to Bryan, Texas, a hundred miles northwest of Houston, two years after his birth where his father was a general contractor. He grew up with two brothers and a sister and entered Texas A. and M. at the age of 16 graduating at 19.

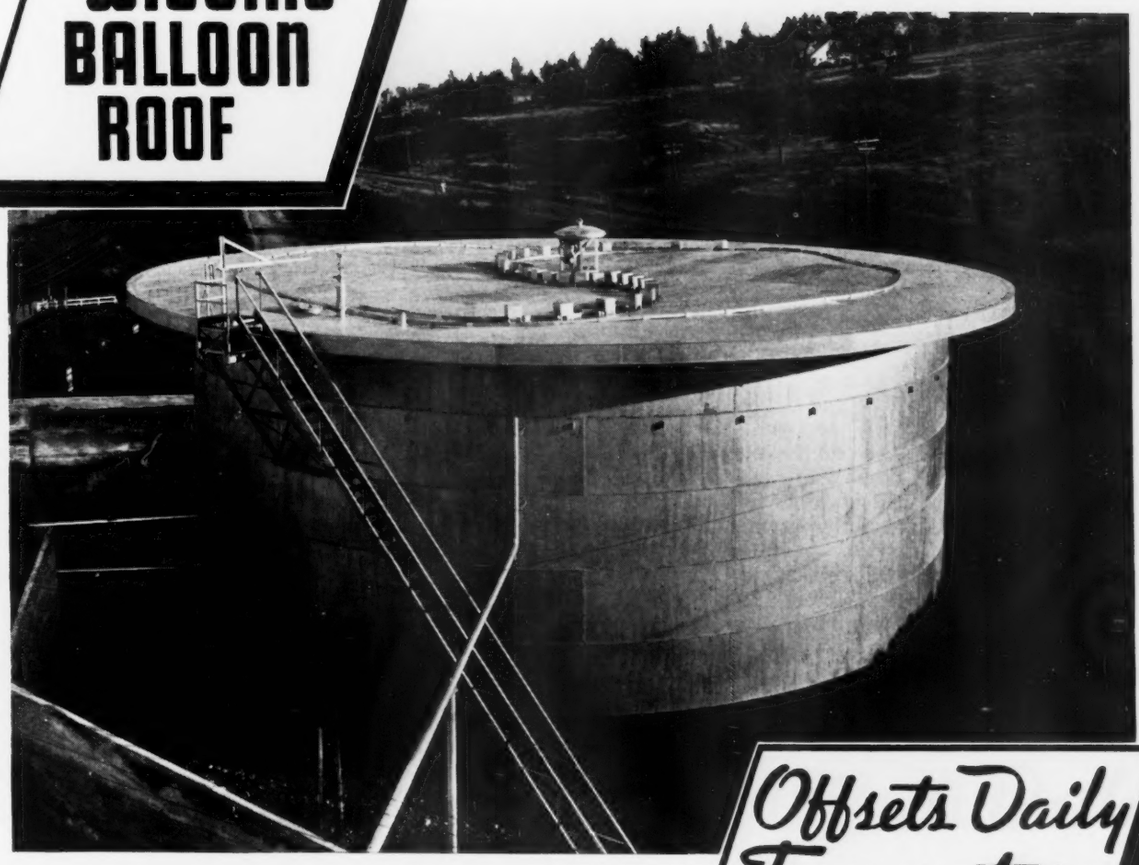
Mr. Newton admits the ability to play the piano at least enough to play "Cannon Ball" which is noted mainly for its tonal volume. A different story comes from one who knew him during the college years. From this source it was learned that he "developed into a regular Paderewski". He was considered one of the finest pianists in the school and was known also as a "regular Russian pianist because he was always hungry before and after playing".

Being somewhat of a humorist, clown, or "life-of-the-party" Newton had a way of making folks remember his name at school. When asked his name he would say "J. W. Newton is my name. Ever heard of it? If not you have heard of my great-great grandfather Sir Isaac Newton." At the time of graduation from college he weighed 160 pounds, was almost six feet tall.

During the early days of radio Magnolia built station KFDM which is still broadcasting from Beaumont but is now in other hands. During this period, starting in 1924, Newton was announcer for the station and was known under the name of "Magnolene Mike". Mr. Newton recalls "one cold wintry night" (the temperature in Beaumont sometimes goes down to freezing or below in January) when an attempt was made to determine just how far their broadcast was being heard. Just as many another station has done, requests were made for postal card replies which brought the gratifying knowledge that there were listeners in at least 39 states to the 500-watt station.

Newton's chairmanship of the Beaumont Navigation District committee has been mentioned as well as membership on the Lower Neches Valley Authority whose object is to obtain fresh water for this section of the Gulf coast. He is vice president of the Beaumont Rotary Club, a member of the Masonic Lodge and of the Baptist church, and director of the local Chamber of Commerce. Recently he served a term as president of the Beaumont Country Club. He has always been interested in the Alumni work of Texas A. and M. The Beaumont A & M Club gave him an appreciation dinner shortly after promotion to his present position and directed him to hang on his office wall a framed "Salute to John W. Newton from the Beaumont A & M Alumni Association."

WIGGINS BALLOON ROOF



Offsets Daily Temperature Changes

ANOTHER example of the steps being taken by oil companies to reduce unusually large evaporation losses from gasoline tanks in the Maritime provinces of Canada is to be found at Halifax, Nova Scotia. There the Provincial Oils Limited has equipped the 30,000-bbl. tank shown above with a Wiggins Balloon Roof and connected the vapor space of an adjoining 15,000-bbl. cone roof tank into it.

Provincial Oils Limited is a marketing organization with service stations throughout Nova Scotia and New Brunswick. Marine terminals are operated at Halifax, Sydney and Port William, N. S., and St. John, N. B. Stocks come in by tanker and are distributed by rail and truck to both company service stations and independent dealers.

The relatively high evaporation losses—averaging about 3% of the tank capacity from gasoline in standing storage—in latitudes where one would normally expect to find a cool climate, are due to wide fluctuations in daily temperatures.

During the 18 months that the Wiggins Balloon Roof has been in service, it has prevented practically all standing storage loss on both the 30,000-bbl. tank and the tank to which it is connected by the vapor line shown extending into the foreground of the above illustration.

For information or estimating data covering balloon roof installations for new or existing oil storage tanks, please write our nearest office.

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Tulsa.....1607 Hunt Bldg.	Detroit.....1513 Lafayette Bldg.	Los Angeles.....1422 Wm. Fox Bldg.
New York...3345-165 Broadway Bldg.	Birmingham....1534 North 50th Street	Boston...1516 Consolidated Gas Bldg.

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Mid-Continent Gasoline Yield Rises Nearly 0.5% Per Year

By M. G. Van Voorhis
N. P. N. Staff Writer

ABSTRACT

The Mid-Continent refiners' margin—his return from running a barrel of crude oil through his stills, based on posted price of crude and current quoted market values of the products—showed considerable improvement in 1939 following reduction of the price of crude oil, almost reaching the top levels of 1935, 1936, and 1937, as shown by the accompanying graph and tables.

Since it has been impractical to maintain running, up-to-date averages of product yields in the Mid-Continent area, it is necessary from time to time to correct the computed average margin, known as the "N.P.N. Refiners' Index", by computing changes in average yields of products. In the Mid-Continent the controlling factor has been gradually increasing yields of gasoline which tend to raise the average refiner's margin.

REFINERS in the Mid-Continent now recover 22.38 gallons of gasoline per barrel of crude oil, an increase of 4.16 gallons per barrel since 1928. In the past two and a half years the increase has been one gallon per barrel of crude run.

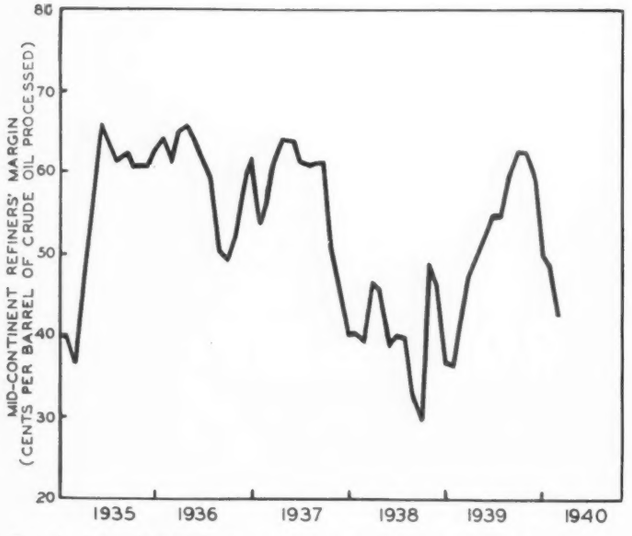
This rapid increase in the yield of the industry's best "money crop" necessitates a revision of the N.P.N. Refinery Index which has been published regularly for several years. The index figures represent a calculated margin to cover the cost of refining a barrel of 36-36.9 gravity Mid-Continent crude and transportation of the crude from the well to the refinery. The index is calculated by subtracting the current price of crude at the well from the weighted average price of refined products quoted in the Oklahoma refinery market.

Last previous tune-up of the refinery index was made in 1938 and published July 13, 1938, p. 25. At that time the index was calculated for historical comparative purposes back to 1928. Subsequently the final annual report of the U. S. Bureau of Mines for 1937 showed some corrections from monthly reports. For that reason the present revision goes back through all of 1937.

It should be emphasized that this index is not an accurate representation of any single refinery. As an estimated average for the entire Mid-Continent field it has been considered by many as significant to the whole industry.

No effort is made in this index to show the cost of refining a barrel of crude, or of transporting the crude from the well to the refinery. Some students of oil industry economics have made calculations showing the cost of refining and transportation in order to indicate how high the index must be to allow the refiner a profit but no attempt is made here to develop such information.

The index is most sensitive to changes in the price of



Trend of the N.P.N. Refinery Index for the past five years. The index is a calculated margin between the cost of 36 gravity crude at the well and the selling price of refined products in tank car lots in the Mid-Continent field

Table 2

Yield of Petroleum Products

Year	Gasoline	Kerosine	% Recovery Gas and heating oil	Fuel oil, still gas	Specialties	Misc. Loss etc.
1928	43.38	7.59	8.09	35.09	1.07	4.78
1929	42.95	6.90	8.52	35.10	1.28	5.25
1930	47.18	6.16	7.90	30.79	1.91	6.06
1931	48.85	5.68	10.02	28.41	2.17	4.87
1932	50.17	6.10	9.02	27.72	2.32	4.67
1933	49.64	6.27	8.71	28.72	2.07	4.59
1934	50.02	6.26	9.06	27.79	2.32	4.55
1935	50.24	6.49	9.82	28.23	2.02	3.20
1936	50.37	5.69	10.72	28.47	2.24	2.51
1937	51.31	5.78	10.83	27.48	2.63	1.98
1938	52.72	6.00	10.66	26.15	3.17	1.30
1939	53.29	6.21	9.56	24.67	3.49	2.78
	Gallons Recovered Per Barrel of Crude Run					
1928	18.22	3.19	3.40	14.74	.50	1.95
1929	18.04	2.90	3.58	14.74	.54	2.20
1930	19.82	2.59	3.32	12.93	.80	2.54
1931	20.52	2.39	4.21	11.93	.91	2.04
1932	21.07	2.56	3.79	11.64	.97	1.97
1933	20.85	2.63	3.70	12.06	.87	1.89
1934	21.01	2.63	3.81	11.67	.97	1.91
1935	21.10	2.73	4.12	11.86	.85	1.34
1936	21.16	2.39	4.50	11.96	.94	1.05
1937	21.55	2.43	4.55	11.54	1.10	.83
1938	22.14	2.52	4.48	10.98	1.33	.55
1939	22.38	2.61	4.02	10.36	1.47	1.17

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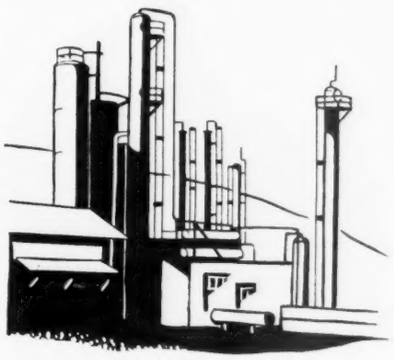

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Table 1

N.P.N. Refinery Index Computed on a Static Product Yield Basis and on the Basis of Current Year Yields

	1934 (1934 Yields)	1935 (1934 Yields)	1935 (1935 Yields)	1936 (1934 Yields)	1936 (1936 Yields)	1937 (1934 Yields)	1937 (1937* Yields)	1938 (1937 Yields)	1938 (1938 Yields)	1939 (1937 Yields)	1939 (1939 Yields)	1940 (1937 Yields)	1940 (1939 Yields)
January†	50.6	38.4	40.3	59.9	62.5	56.1	62.0	36.5	40.2	34.7	36.7	47.9	50.3
February	47.2	37.7	39.6	51.0	64.0	47.8	53.9	36.7	40.4	34.4	36.4	46.3	48.4
March	41.1	34.3	36.5	58.4	61.1	50.2	56.8	35.8	39.5	39.4	41.7	40.9	42.7
April	37.1	44.8	46.9	62.4	65.2	55.4	61.4	42.7	46.8	44.8	47.4	....	....
May	46.6	54.5	56.6	62.7	65.7	58.2	64.1	41.1	45.3	47.5	50.1	....	....
June	45.1	64.1	66.2	60.7	63.7	57.9	63.8	34.8	38.8	49.7	52.4	....	....
July	36.3	61.6	63.7	58.5	61.2	55.1	61.0	45.7	50.3	52.2	55.1	....	....
August	44.1	59.5	61.5	56.5	59.2	54.9	60.8	45.7	50.1	51.7	54.7	....	....
September	36.5	60.1	62.2	47.9	50.5	55.2	61.2	39.0	43.2	56.8	60.0	....	....
October	37.6	58.5	60.6	45.7	49.4	55.3	61.4	25.8	29.6	59.7	61.7	....	....
November	48.7	58.9	61.0	50.1	52.8	44.8	50.6	45.7	49.4	59.5	62.5	....	....
December	41.8	58.6	61.0	55.0	58.0	31.8	45.4	43.1	46.5	57.4	60.2	....	....

*Revised 1937 yield basis. †The index is computed on the first day of each month that price quotations are published in Platt's Oilgram.

gasoline. A change in the gasoline market of only ⅛ cent per gallon produces a corresponding change of 2.8 cents in the index. In other words a drop of ⅛ cent per gallon in the price of gasoline acts the same on the refiner's economy as an increase of 2.8 cents per barrel in the market for crude oil.

The index is not quite half as sensitive to changes in the fuel oil market. A reduction of 5 cents per barrel in the selling price of heavy fuel oil acts the same on the refiner's operating profit as an increase of 1.2 cents per barrel in the price of crude oil.

Changes in gasoline yield have a marked effect on the refinery index. An increase of 0.5 per cent in the yield of gasoline increases the index by about 1 cent when the gasoline market is between 4.5 and 5 cents per gallon. This is about the average annual increase per year observed during the past five years.

The trend of yields from 1928 to 1939 is shown in Table 2. During this period average gasoline yield rose from about 43% to over 53% of the crude oil processed, or from 18 gallons per barrel of crude to 22 gallons. One extra gallon was added to average Mid-Continent refinery production within the past two and a half years, the figures indicate.

While gasoline percentage yield has been climbing, residual fuel oil yield per barrel of crude oil has been dropping. Thus, 1928 gasoline production was 35% of crude run to stills, while 1939 production was just under 25%. These percentages correspond with 14¾ gallons and 10 1/3 gallons per barrel of crude oil. Strictly speaking, these figures include still gas production but this is a small item. It is included with fuel oil only because of comparable value.

Though small in comparison with production of other products, it is notable that the specialty products, which include asphalt, coke, and road oil, are over three times as much in 1939 as in 1938. Their valuation has been such that it has been a minor item in refiners' return for products but increased yields of these products have raised the refiners' margin by 1 cent in a period of three years in spite of much lower prices in 1938. Miscellaneous products and losses have been reduced also during the past decade. It is possible that final statistics for 1939 will result in a better figure in this class just as they did for 1937.

The method for computing crude oil yields of refined products is indicated in Table 3. The figures used for 1939 are taken from monthly petroleum statements of the Bureau of Mines, Table 10—Runs to Stills and Output of Refineries, using figures for the three Mid-Continent districts: Okla., Kans., Mo.; Texas Inland; and Ark. and La. Inland.

The prices of these products are taken from quotations in Platt's Oilgram for the Oklahoma market as follows:

Gasoline—Average low for "regular" grade gasoline (now 70-72 L-3 octane) on the first day of each month that the Oilgram is published.

Kerosine—Average of the quoted price range for 41-43 w.w. kerosine.

Gas, heating oils—Average of the quoted price range for No. 1 p.w. and No. 1 straw oils.

Heavy fuel oil—Average of the quoted price range for 14-16 fuel.

For specialties it was impractical to determine daily or even monthly prices. Yearly determinations for asphalt and road oil are based on figures published by the Bureau of Mines in the Minerals Yearbook. An average of $3 per ton of coke was taken as the most reasonable approximation. These figures are not so far in error as to produce more than a fraction of a cent difference in the final index figure. The specialties return for 1938 on this basis is given in the following table 4.

Table 3

Crude Yields—1939

	1000's Bbls.	
Crude runs to stills	202,698	
Unfinished reruns (net)	—973	
Net runs	201,725	100%
Gasoline output	119,334	
Natural gasoline	—11,834	
Net gasoline output	107,500	53.29%
Kerosine	12,520	6.21%
Heating, gas oils, and lubricating oil	19,160	
Wax @ 273 lbs. per bbl.	127	
Total	19,287	9.56%
Fuel oil and still gas	49,770	24.67%
Specialties:		
Road oil	1,763	
Coke @ 5 bbls. per ton	1,433	
Asphalt @ 5½ bbls. per ton	3,841	
Total Specialties	7,037	3.49%
Total accounted for		97.23%
Misc., Shortage, etc.		2.77%

Table 4

Specialties Return (1938)

Product	Yield %	Per Bbl. Price	Realization
Asphalt	1.997	$1.24	$.0248
Coke	0.785	3.00 x 0.2*	.0047
Road Oil	.387	0.96	.0037
Total	3.169		$.0332 per barrel

*Per ton price converted to per barrel (5 barrels per ton).

This table gives the estimated average realization from the three specialty products per barrel of crude processed during 1938.

A sample computation of the refiners' margin or Refiners' Index is shown in Table 5. In this table the crude cost is taken as the well price for 36°-36.9° A.P.I. gravity Oklahoma crude quoted by the Stanolind Crude Purchasing Co. and published weekly in NATIONAL PETROLEUM NEWS.

While obviously no fair comparison can be made between

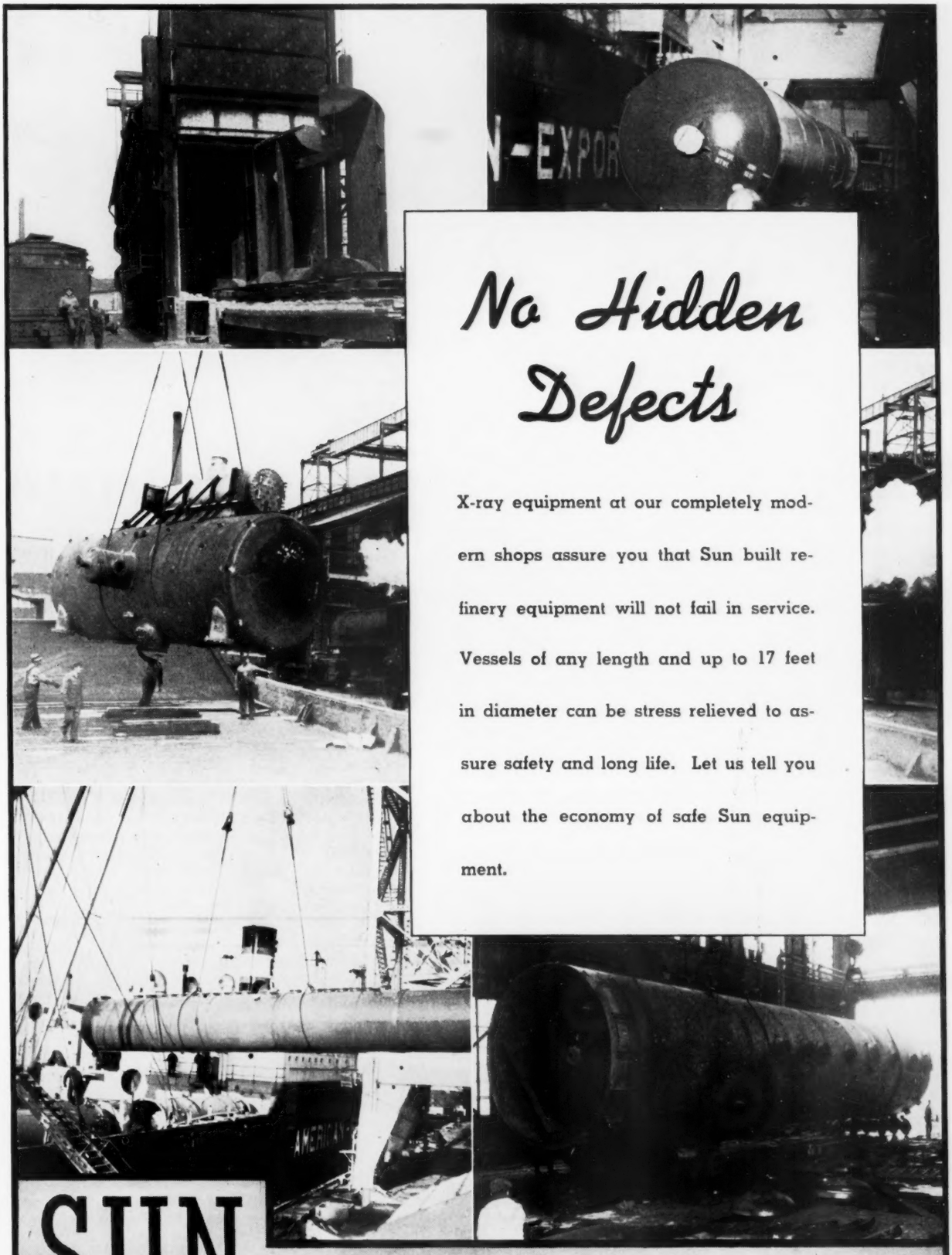

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Table 5

Computation of the Refiners' Index for February, 1940

	Yield	Gals. Output Per Bbl.		Price Per	Realization Per
	%	Crude		Gallon	Barrel
Gasoline	53.29	22.38	x	$0.045	$1.008
Kerosine	6.21	2.61	x	.04	.104
Gas-heating oils	9.56	4.02	x	.037	.149
Fuel oil, still gas	24.67	....	x	.85*	.210
Specialties	3.49	....	..	....	.033
Realization					$1.504
Price 36 gravity Mid-Continent crude					1.02
Refiners' Margin (Index)					48.4 cents

*Price per barrel.

refiners' indexes computed among the several districts, it is interesting to compare the results obtained by applying as nearly comparable methods as possible to computation of indexes for other districts than the Mid-Continent. Probably the most nearly comparable district is Indiana-Illinois.

This district produces still higher yields of motor fuel than the Mid-Continent, i.e., 55.6% in 1938 and double its yield of specialty products—asphalt, coke, and road oil, particularly coke. Gas and heating oil yield is also somewhat higher. Losses were practically negligible. Basing heavy fuel prices on No. 5 and assuming a crude price the same as Mid-Continent, the Ind.-Ill. index for Feb. 1940 is 53 cents.

On the other extreme is the Appalachian district which provides no basis for comparison. Gasoline yield averages higher than the Gulf coast and Atlantic coast and nearly 5% lower than the Mid-Continent. Lubricating oil must be handled separately in this district. The results of this computation show an index in the neighborhood of 90 cents.

On the Texas gulf coast and East coast average gasoline yield is 43.4% and 38.5% respectively while the classification of heating oils, gas oils, and lubricating oil shows a yield nearly double the Mid-Continent figure. Heavy fuel oils are also of higher percentage. Considerably higher prices for fuel oils make up for the lower gasoline production as well as higher gasoline prices. On the Gulf coast the index computed for February is close to 75 cents. After deducting the present tanker rate for crude oil to the East Coast an index of 56 cents was determined. Present tanker rates are comparatively high, two to three times as high as they have been within the past two or three years.

Activities OF EQUIPMENT MANUFACTURERS

BEARING—Koppers Co., Bartlett Hayward Division, Baltimore, has just issued a booklet describing its new Fast's Multiple Oil Film bearing. The booklet discusses the principle of the bearing, provides tables of dimensions and load capacities, recommended shaft sizes, and other data.

The bearing is designed to carry the load on more than one wedge-shaped oil film. The design of the inner sleeve of the bearing permits the formation of oil film wedges which are said to prevent metal to metal contact at all points between the bearing surfaces. The bearing is designed to act as a centrifugal feed pump for distributing lubricating oil, a surplus of oil acting as a cooling medium. Dependent on speed, the bearing used oils varying in viscosity from S.A.E. 250 to S.A.E. 10.

Bearings in a sealed housing are said to be capable of running continuously for a year on a single filling of oil. Standard bearing housings have been designed for shaft diameters from approximately 1½ to 10 inches. Their load capacity is said to increase with speed and "is normally as great as that of the shaft."

* * *

NICKEL CHROMIUM STEEL—(18-8) is being increasingly used for liners where sulfur in the hot refinery gases is the principal attacking agent, and monel where water is present, it is reported in the annual review of "The Nickel Industry in 1939" by Robert C. Stanley, chairman of the board and president of The International Nickel Co. of Canada.

Monel clad steel has lately been introduced for protecting refinery equipment operating below 500° F. In many cases, liners, valves, and pistons of reciprocating pumps are made of Ni-Resist, an austenitic corrosion resisting cast iron, the report states. Casings and impellers of centrifugal pumps are also being made of this alloy.

For low temperature service down to —200° F., heat exchange equipment and fractionating columns were made of low carbon nickel steels, it is stated, "because they maintain satisfactory impact values at these temperatures."

* * *

TUBE CLEANER—Thomas C. Wilson, Inc., 55 Vandam St., N. Y., has developed a series of tube cleaning motors and cutter heads said to enable better removal of both hard coke or gummy deposits. Six-bladed two-cylinder air motors are used and a unique method of introducing the air into the cylinders is said to assure positive starting and elimination of sticking. A permanent seal between the intake and exhaust areas of opposing cylinders insures the continuance of original efficiency and a reduction in air losses, it is said.

* * *

CONDENSER TUBES. Long-time efforts to improve the resistance of Admiralty metal to dezincification has led Scovill Mfg. Co., Waterbury, Conn., to add a small amount of phosphorus, according to C. A. Gleason, engineer in charge of technical condenser tube service, in an announcement on the results of field and accelerated laboratory tests.

The material has been in production and service a sufficient time to accumulate an impressive experience table, Gleason said. There are 60 known installations, 80% of which are in oil refineries. On the basis of performance, a major Gulf Coast refinery finds phosphorized Admiralty and one other competitive Admiralty performing above other Admiralties, he reported. Service performance comparable with 70-30 Cupro Nickel is said to be the experience of this refinery.

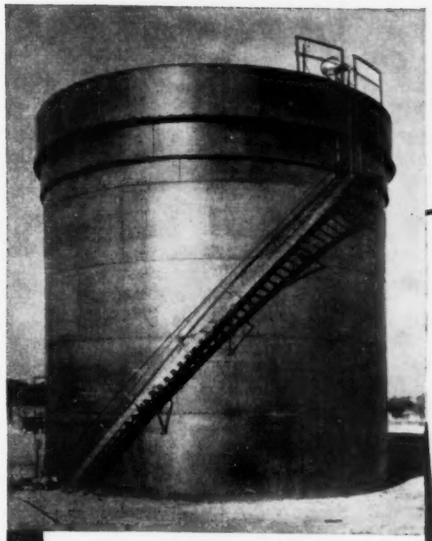
The effect of phosphorus is said also to be beneficial on other properties of the metal; intrinsic hardness and strength of the alloy are increased, for example. Phosphorus is also said to retard softening and grain growth.

The action of the phosphorus is explained briefly as follows. It is believed to form an impervious film over anodic areas on the metal surface, thus preventing the current flow involved in the electro-chemical action accompanying dezincification. The film is believed to be a corrosion product of the alloy.

* * *

STAINLESS STEEL—"The Fabrication of U. S. S. Stainless Steels" is the title of a 92-page 6 x 9-inch book bound in stiff covers, just issued by the U. S. Steel Corp. subsidiaries. This new book, which is divided into three sections, discusses the technical and practical aspects of stainless steel fabrication. Part I deals with welding, riveting, soldering and joint design; Part II with machining, cutting, forming, annealing and pickling, and Part III covers surface finishing and protection.

Copies are available at $1 from Carnegie-Illinois Steel Corp., American Steel & Wire Co., Columbia Steel Co., or National Tube Co.



Graver Expansion roof on 10.000 bbl. tank. Roof prevents breathing losses —maintains quality of gasoline.

PROTECTION

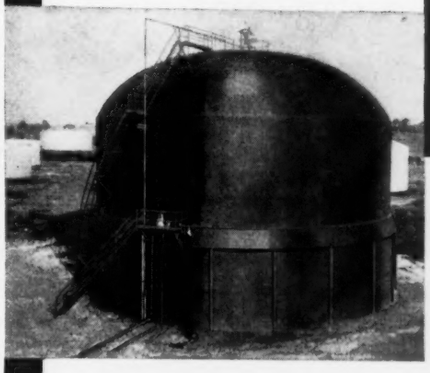
More than three quarters of a century of dependable service guarantees protection to the Oil Industry in its use of Graver equipment.

Protection of investment through reduced costs and greater operating efficiency — protection based on sound design and construction — this is the principal factor in making Graver "the First Name in Steel Plate Construction."

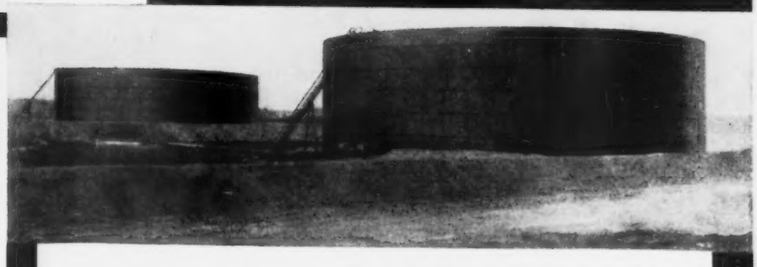
GRAVER *builds...*

Water Softeners . . . Filtration Systems . . . Clarifiers
Steel Storage Tanks . . . Vapor Conservation Systems
Fabricated Steel and Non-Corrosive Composite Plate

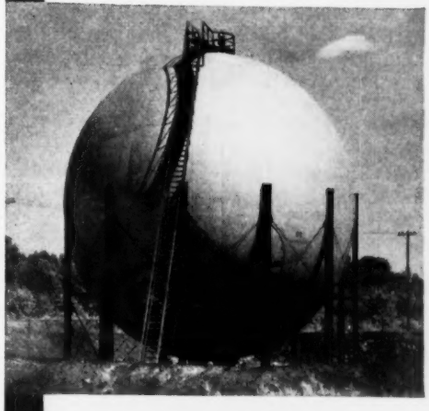
For details on your requirements write
Graver Tank & Mfg. Co., Inc., Dept. 15, East Chicago, Indiana



Welded Pressure Tank designed for 6 lbs. working pressure. Capacity 25,000 bbls.

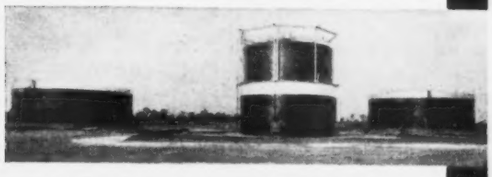


Riveted. Oil Storage Tanks. Dia. 168 ft., height 46 ft., capacity 182.000 bbls.

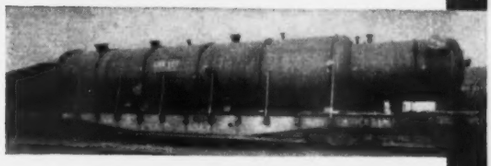


Welded Sphere—for gasoline storage. 10.000 bbls. capacity. Designed for 20 lbs. working pressure.

Hot Process Water Softener.



Vapor reservoir connected to large storage tanks. Capacity 56.000 cubic feet.



Welded—Four Compartment Pressure Vessel—8 ft. dia. —6 ft. dia.—52 ft. length. Designed and constructed in accordance with the A. P. I.—A. S. M. E. Code.

GRAVER TANK & MFG. CO., INC.

OVER THREE QUARTERS OF A CENTURY OF DEPENDABLE SERVICE

NEW YORK
CATASAUQUA, PA.

EAST CHICAGO, IND.

CHICAGO
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CABLE ADDRESS—*GRATANK*

First High School Oil Vocational Course Prepares Graduates for Oil Jobs

WHAT is believed to be the first high school oil and gas vocational department in the world is getting under way at Oil City, Pa., as fast as shop equipment has been made available. Heading this new well-equipped department or "All-Day Unit Trade School" as it is known, is Russell R. Buckham, former chief chemist for James B. Berry Sons' Co., Independent plant, Oil City.

The course is aimed to parallel industry in every respect, even to the hours spent per day in the shop, and is designed to equip high school graduates to assume productive roles in oil production and refining without preliminary training by oil companies. Fifty high school students, 25 Juniors and 25 Seniors, were admitted to the course this year. All are taking the same program but since the complete course will require two years, this year's Seniors will graduate with only half of the regular course work completed.

Refinery officials and production engineers have had much to do with planning the curriculum of the course. A large share of credit goes to Mr. Buckham who has taken a keen interest in the project and mapped out the work as it is now given. The course being entirely new has necessitated its being conducted on somewhat experimental lines the first year.

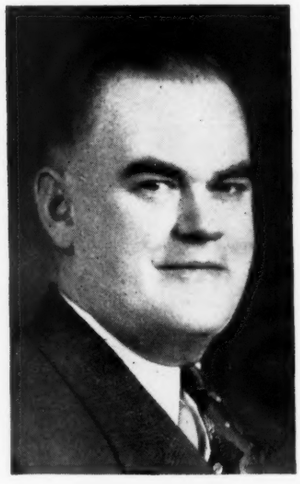
Under the present plan the classes spend alternate weeks in the shop. One week consists of five six-hour days in the shop and the next week is spent in the class room on other subjects included in the course. These are English, mathematics, science, history, and mechanical drawing. Physical education, supervised study, and counseling are also included as in other high school courses.

The two-year program calls for 1080 hours spent in the shop by each boy and a similar number of hours in the classroom. Shop work is divided up as follows:

	Hours		Hours
Pipe fitting	200	Gas cutting, welding	150
Repairs, cutting in	60	Arc welding	130
Heat insulation, pipe coating	90	Forge, practice	100
Concrete work	75	Heat treatment	75
Refinery operations	80	Oil testing	120

The oil and gas department is located on the ground floor of a newly completed wing of the high school. It shares a large room with a machine shop and occupies a floor space of about 1350 square feet. The equipment includes four oxy-acetylene welding units, one gas cutting unit, two arc-welding units, two blacksmith forge units and three anvils, one automatic pipe cutter, reamer, and threading machine, a drill press, a heat-treating unit, and laboratory equipment for testing oils for color, gravity, flash and fire points, pour point, viscosity, and distillation.

Refinery unit operations will include study of stills, pipe heaters, condensers, distillation units, wax presses, filters and settlers. To facilitate these studies special trips will be made through refineries and laboratories. Throughout the course emphasis is given under all circumstances to safety and safe practices. The department is equipped with the finest set of tools to be had and they are handled, as in the refinery, by a tool room with checking system. At one time or another each student is taught the operation of the tool room. In his work he is first taught to select his materials and then to make bills of material for the various projects upon which he works.



Russell R. Buckham

One of the features of the new department is its reference corner which has been built up by student initiative and includes numerous catalogs and trade papers such as NATIONAL PETROLEUM NEWS. Already the accumulated references have outgrown the rack which was welded together by one of the students.

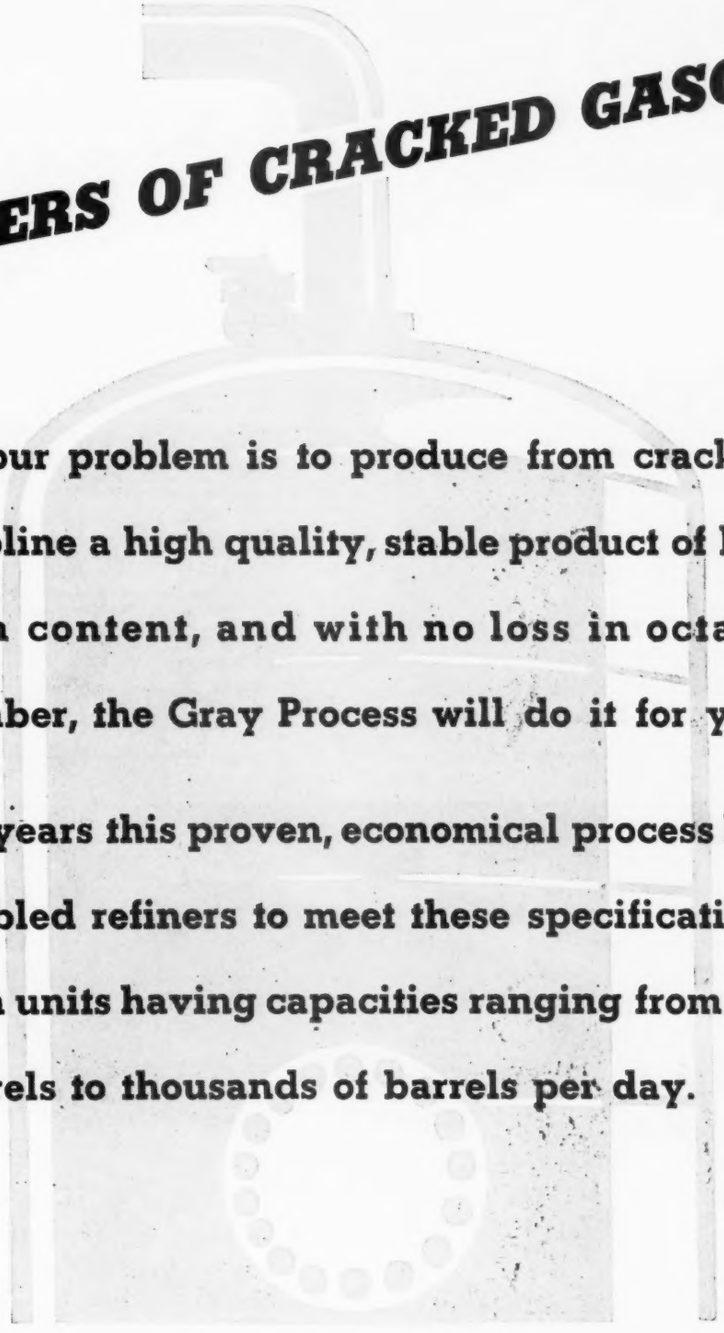
Mr. Buckham, head of the new vocational department, is not new in the teaching profession. For the past four years he has taught the extension night school courses offered by Pennsylvania State College to oil company employes in the Oil City district. With less preliminary training than the boys who will complete the new course, he rose to the position of chief chemist. His experience in the oil industry covers a period of 18 years with the Berry refinery.

While the course started at the beginning of the school year, it has not been until recently that the shop has acquired most of its equipment. Forge work started recently when anvils were installed and large pipe work awaited the recently installed automatic threading machine. Arc-welding machines were also recent acquisitions. Equipment, so far, has all been purchased by school authorities.

C. W. Georgi joined Quaker State Oil Refining Corp., Emlenton, Pa., recently as technical director of the research laboratory. Georgi was formerly chief chemist for Enterprise Oil Co., Buffalo. While in Buffalo he served as chairman and secretary-treasurer of the Buffalo section of the Society of Automotive Engineers.

THE GRAY CLAY TREATING PROCESS

TO REFINERS OF CRACKED GASOLINE



If your problem is to produce from cracked gasoline a high quality, stable product of low gum content, and with no loss in octane number, the Gray Process will do it for you.

For years this proven, economical process has enabled refiners to meet these specifications with units having capacities ranging from 100 barrels to thousands of barrels per day.

THE GRAY PROCESSES CORPORATION

Licenses granted under United States and Foreign Patents by The Gray Processes Corporation

26 JOURNAL SQUARE · JERSEY CITY, N. J.

New Patents

Compiled by R. E. Burnham, patent and trade-mark attorney, 511 Eleventh Street, NW, Washington, D. C., from whom copies may be obtained at rate of 25c each. State number of patent and name of inventor when ordering.

January 23, 1940

Treatment of heavy hydrocarbon material—E. J. Houdry, Rosemont, Pa., assignor to Houdry Process Corp. Filed Jan. 15, 1936. No. 2,187,741.

Method of refining viscous hydrocarbon oils—N. E. Lemmon, Hammond, Ind., assignor to Standard Oil Co. (Ind.) Filed Dec. 30, 1937. No. 2,187,883.

Methods of separating high molecular mixtures — Stanislaw Pilat and Marian Godiewicz, Lwow, Poland, assignors to Shell Development Co. Filed Feb. 4 and Apr. 27, 1936. Nos. 2,188,012 and 2,188,013.

Process for refining lignite tar, tar, shale tar, peat tar, and like—Friedrich Schick, Germany. Filed Aug. 4, 1936. No. 2,188,015.

Method of separating high molecular mixtures—E. S. Hillman, Berkeley, and Vernon Lantz, Oakland, Cal., assignors to Shell Development Co. Filed Feb. 8, 1937. No. 2,188,045.

Extraction process—Vernon Lantz, Oakland, Cal., assignor to Shell Development Co. Filed Nov. 1, 1937. No. 2,188,051.

Process for catalytic conversion of gaseous hydrocarbons—Boris Malishev, Elizabeth, N. J., assignor to Universal Development Corp., 30 1/3% and to John P. Nikonow 3%. Filed Jan. 24, 1939. No. 2,188,057.

Treatment of hydrocarbon distillates—H. B. Cooke, Greenwich, Conn., assignor to Gray Processes Corp. Filed Feb. 18, 1936. No. 2,188,075.

Lubricant—J. W. Johnson, Philadelphia, assignor to Atlantic Refining Co. Filed May 12, 1938. No. 2,187,742.

Lubricating oil—P. G. Colin, Staten Island, N. Y., and A. W. Lewis, Elizabeth, N. J., assignors to Tide Water Associated Oil Co. Filed Sept. 25, 1937. No. 2,187,802.

Diesel fuel—G. S. Crandall, Woodbury, N. J., assignor to Socony-Vacuum Oil Co. Filed Dec. 2, 1938. No. 2,188,262.

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January 30, 1940

Conversion of hydrocarbon oils—L. C. Rubin, Nutley, N. J., assignor to Gasoline Products Co. Filed Apr. 22, 1936. No. 2,188,312.

Treatment of hydrocarbons—W. E. Kuhn, Jackson Heights, N. Y., assignor to Texaco Development Co. Filed July 20, 1937. No. 2,188,363.

Separation of mixtures of hydrocarbons—M. A. Dietrich, Wilmington, Del., assignor to I. E. du Pont de Nemours & Co. Filed May 19, 1936. No. 2,188,531.

Conversion of hydrocarbons—H. V. Atwell, White Plains, N. Y., assignor to Process Management Co. Filed May 11, 1937. No. 2,188,638.

Treatment of oil—H. J. Robertson, Tulsa, assignor to Sinclair Refining Co. Filed Nov. 20, 1937. No. 2,188,770.

Carbon solvent and lubricant—R. L. Buffington, Marietta, Ohio. Filed May 7, 1937. No. 2,188,645.

Grease and method of making—S. E. Jolly, Prospect Park, and W. M. McKee, Bortondale, Pa., assignors to Sun Oil Co. Filed Sept. 5, 1936. No. 2,188,863

Grease and method of making—S. E. Jolly, assignor to Sun Oil Co. Filed Aug. 13, 1938. No. 2,188,864.

★ ★ ★

February 6, 1940

Process for treating hydrocarbons—Hugh Miller and J. L. Farrell, Whittenburg, Tex., assignors to Phillips Petroleum Co. Filed Nov. 13, 1933. No. 2,189,016.

Treatment of hydrocarbon oils—R. B. Day, Amarillo, Tex., assignor to Universal Oil Products Co. Filed Apr. 14, 1937. No. 2,189,058.

Process for separation of propane and propylene from gas mixtures—Paul Feiler, Germany, assignor to I. G. Farbenindustrie. Filed Feb. 9, 1938. No. 2,189,062.

Process of refining mineral oil—F. W. Breth, New York, and Manuel Blumer, Butler, Pa. Filed July 17, 1936. No. 2,189,128.

Recovery of gaseous diolefins—G. M. Hebbard and L. E. Lloyd, Midland, Mich., assignors to Dow Chemical Co. Filed July 9, 1938. No. 2,189,173.

Method and apparatus for processing crude petroleum—D. G. Brandt, Westfield, N. J., assignor to Power Patents Co. Filed Apr. 14, 1934. No. 2,189,191.

Refining fuel oil—M. T. Carpenter, Chicago, assignor to Standard Oil Co. (Ind.) Filed Nov. 23, 1936. No. 2,189,196.

Manufacture of gasoline-like hydrocarbons—P. C. Keith, Jr., Peapack, N. J., assignor to Process Management Co. Filed Oct. 30, 1935. No. 2,189,265.

Contacting process and apparatus—C. G. Hawley, Chicago, assignor to Centriflx Corp. Filed Mar. 1, 1937. No. 2,189,491.

Process for conversion of hydrocarbons—M. P. Youker, Bartles-

BEST-
IN THE LONG RUN!
BECAUSE THEY'RE BUILT TO MEET THEIR GUARANTEES!
Pritchard towers will cool all the water they are supposed to handle, down to the temperature specified under given atmospheric conditions. You can depend upon them for efficient performance under all load conditions.
J. F. PRITCHARD & CO., Dwight Bldg., Kansas City, Mo.
PRITCHARD
Atmospheric and Mechanical Draft
WATER COOLING TOWERS
Manufacturers of a Complete Line of Water Cooling Equipment
Branch Offices: Tulsa, Okla.; Houston, Tex.; Columbus, Ohio; Chicago, Ill.

ville, Okla., assignor to Phillips Petroleum Co. Filed Feb. 11, 1935. No. 2,189,645.

Process for treating mineral oils—M. R. Fenske and W. B. McCluer, State College, Pa., assignors to Pennsylvania Petroleum Research Corp. Filed Dec. 15, 1934. No. 2,189,647.

Conversion of hydrocarbons—R. F. Ruthruff, Nutley, N. J., assignor to Polymerization Process Corp. Filed Sept. 15, 1938. No. 2,189,655.

Lubricant and method of producing—W. L. Evers, Woodbury, N. J., assignor to Socony-Vacuum Oil Co. Filed Dec. 28, 1935. No. 2,188,943.

Method of decomposing oil to olefins—Theodore Nagel, Brooklyn, N. Y. Filed Mar. 9, 1938. No. 2,188,982.

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February 13, 1940

Treatment of hydrocarbon gases—J. C. Morrell and A. V. Grosse, Chicago, assignors to Universal Oil Products Co. Filed Feb. 27, 1936. No. 2,189,815.

Treatment of hydrocarbons—Same inventors and assignee as above. Filed Feb. 29, 1936. No. 2,189,816.

Treating mineral oil—J. V. Star and G. A. Beiswenger, Elizabeth, N. J., assignors to Standard Oil Development Co. Filed Oct. 18, 1933. No. 2,189,844.

Process for refining petroleum distillates—T. C. Whitner, Jr., Elizabeth, N. J., assignor to Standard Oil Development Co. Filed Mar. 6, 1937. No. 2,189,850.

Dewaxing oils with light hydrocarbons—W. J. Edmonds, Scarsdale, N. Y., assignor to Standard Oil Development Co. Filed Sept. 18, 1931. No. 2,189,885.

Refining light hydrocarbon distillates—H. R. Batchelder and B. H. Shoemaker, Hammond, Ind., assignors to Standard Oil Co. (Ind.) Filed Sept. 1, 1937. No. 2,190,007.

Olefin separation—C. M. Hull, Chicago, assignor to Standard Oil Co. (Ind.) Filed Aug. 13, 1938. No. 2,190,025.

Process for deodorizing hydrocarbons—W. B. Plummer, Chicago, and M. H. Arveson, Flossmoor, Ill., assignor to Standard Oil Co. (Ind.) Filed Nov. 27, 1937. No. 2,190,043.

Oxidation of hydrocarbons—W. H. King, New Orleans, and C. Q. Sheely, State College, Miss. Filed Oct. 30, 1936. No. 2,190,453.

Refining of petroleum distillates—Carleton Ellis, Montclair, N. J., assignor to Standard Oil Development Co. Filed Aug. 26, 1938. No. 2,190,471.

Production of gasoline—H. J. Nichols, Jr., Scotch Plains, and G. L. Mateer, Roselle, N. J., assignors to Standard Oil Development Co. Filed July 18, 1936. No. 2,190,480.

Manufacture of gasoline-like hydrocarbons—W. W. Gary, Great Neck, N. Y., and J. S. Carey, Cranford, N. J., assignors to Polymerization Process Corp. Filed Feb. 15, 1936. No. 2,190,624.

Heating hydrocarbon fluids—W. E. Lobo, Westfield, N. J., assignor to Gasoline Products Co. Filed Oct. 30, 1934. No. 2,190,635.

Lubricant—M. W. Freeman, Detroit. Filed Jan. 26, 1934. No. 2,189,788.

Production of unsaturated halogen-containing compounds—William Engs, Oakland, H. P. A. Groll, Berkeley, and A. W. Fairbairn, Oakland, Cal., assignors to Shell Development Co. Filed May 14, 1937. No. 2,189,890.

Products of hydrocarbons (pour point depressors)—Pier, Christmann, Eisenhut, and Hirschberger, Germany, assignors to I. G. Farbenindustrie. Filed Jan. 5, 1934. No. 2,189,924.

Production of alcohols—B. T. Brooks, Old Greenwich, Conn., assignor to Standard Alcohol Co. Filed Dec. 4, 1936. No. 2,190,501.

Summer Courses in Catalysis Offered at Armour Tech

Dr. J. C. Morrell will be on the teaching staff at Armour Institute of Technology, Chicago, this summer to give a two-hour course in Industrial Catalysis. It will cover applications to oil refining, particularly new methods of preparation of high anti-knock motor fuels.

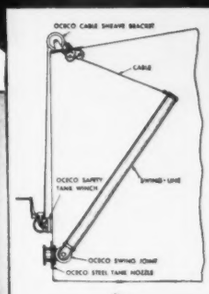
A four-hour course in general catalysis will also be taught during the Summer Graduate Institute by Prof. V. I. Komarewsky. This will include discussions of the main catalytic reactions in organic chemistry such as hydrogenation, condensation, isomerization, polymerization, and alkylation. In the laboratory students will prepare catalysts and perform catalytic reactions at varying pressures.

Water Symposium

A symposium on problems in the classification of natural water intended for industrial use is scheduled for the 1940 annual meeting of the American Society for Testing Materials, June 24-28, Atlantic City.

Work under way by the Boiler Feedwater subcommittee of the Boiler Code committee on methods of water analysis is expected to result in a recommendation at the annual meeting for a proposed method covering reports of water analysis.

OCECO Swing Lines
MEET THE REQUIREMENTS OF PRACTICAL OPERATION



Specify OCECO FITTINGS your tanks deserve the best

• Oceco swing line equipment consists of a steel nozzle, a heavy duty swing joint that will not twist or leak, a gas-tight stuffing box and cable sheave mounted on the tank top, and winch—all of Oceco's serviceable design and dependable manufacture. Winches are worm geared and self-locking. Oceco swing lines meet any tank requirement. Write for descriptive literature.

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BEAUMONT, TEXAS • TULSA, OKLAHOMA • LOS ANGELES • OAKLAND, CALIF.

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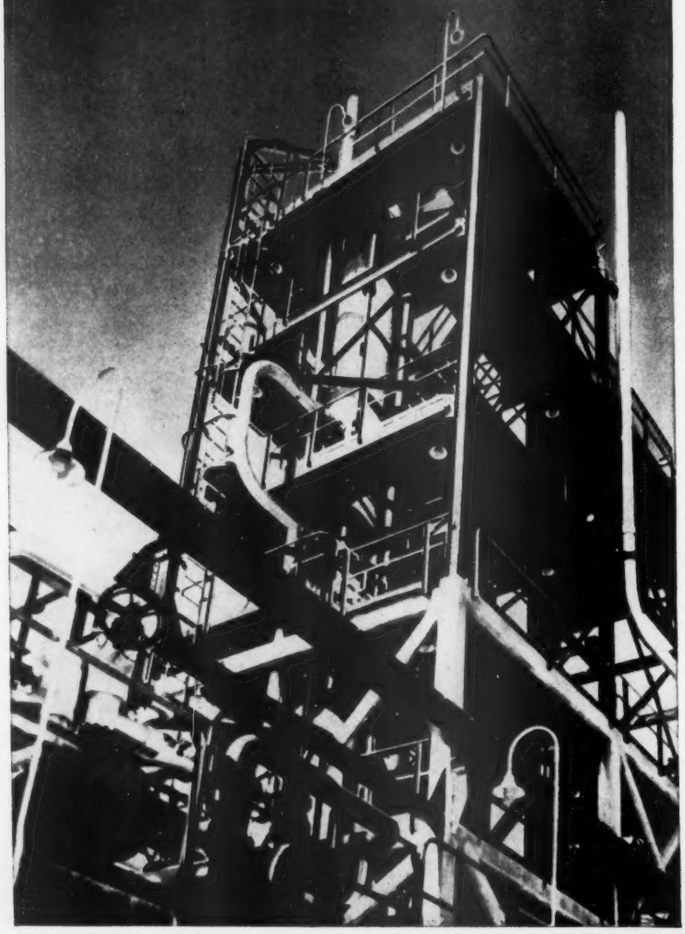
Efficiently Utilizing Available Crudes



CRACKING units under license from Gasoline Products Co. embody in their design the striking advances in methods and equipment developed during the past few years in the field of pyrolytic cracking.

These units permit the refiner to utilize available crudes to produce products best suited to prevailing market conditions.

Refiners considering new plants or modernizing their present cracking facilities should carefully consider these advantages.

GASOLINE PRODUCTS COMPANY, INC.

26 Journal Square • Jersey City, New Jersey

LICENSES granted under United States and Foreign Patents for: Cross, de Florez, Holmes-Manley, Tube and Tank Cracking Processes, Uni-Coil Injection Process and Combination Cracking Units
Licensing Agents: THE M. W. KELLOGG CO., Jersey City, New Jersey, or its *European Representative:* COMPAGNIE TECHNIQUE des PETROLES, 134 Boulevard Haussmann, Paris, France

Lures Tourists With Bags Of "Magic Sand"

The comely young lady in the bathing suit, who is featured in the Magic Florida Sand advertisements of the Orange State Oil Co. of Miami, holds ready to throw one of the small bags of sand which the company gives away at its service stations

Sand, magic sand that makes skies brighter, water bluer, and hearts happier. Such, it is said, is Florida sand. According to legend handed down from the days of Ponce de Leon, who named Florida in 1513, "he who gets Florida sand in his shoes is always sure to come back."

And bringing customers back, is of more than passing interest to the Orange State Oil Co., Miami, now in its second year of a "Sand In Your Shoes" campaign.

Since the campaign commenced, Jan. 1, 1939, this oil marketing company has kept its service stations stocked with one-ounce bags of sand, attached to 5½ in. manila tags, ready for mailing. "Florida Sand For Your Shoes" is stamped on the small brown cotton bags. On one side of the tag, is the following limerick:

Here's a secret that's mighty good news—
It's in the bag, don't fear.
When you get Florida sand in your shoes,
It's bound to bring you here.

Below these four lines are directions: "Sprinkle a little in each shoe. Shake well, pour out all you can. The sand which sticks will work the charm for you."

On the address side of the tag is the brand name of the Cities Service gasoline and motor fuel, which Orange State Oil Co. distributes. The tags and bags of sand are free for the asking, the stations even paying postage.

In advertising this merchandising stunt, a full page ad was run for 10 weeks in the Miami Daily News rotogravure section. Three days after the first advertisement appeared, 10,000 bags of sand had been asked for and addressed at the oil company's stations. After the fourth ad was published, the figure climed to 50,000, and at the end of the 10-weeks campaign, 114,000 bags, or slighly more than 3½ tons of Florida's "magic" sand had left the Orange state by this means.

The "Sand In Your Shoes" idea is the sole property of the Orange State Oil Co., which receives no aid from any Florida booster organization. This advertising stunt was first submitted by an advertising agency for the Miami Beach municipal advertising contract, but municipal authorities turned it down.

John Fenn, general manager of the oil company, saw a full-page layout which had been submitted, showing old Ponce, in ruff and doublet, sitting on the bole of a palm tree, pouring sand from a boot while a startled young Seminole brave watched the proceedings from behind a tree. He saw in the idea the possibilities for pulling tourist motorists into service stations and the oil company took it on.

The Orange State Oil Co. liked the idea so well that advertising appropriations were doubled this year. The campaign commenced two weeks earlier than the 1939-40 winter tourist season, and was extended to seven cities in southern Florida, as well as in Miami. By February of this year, Charles W. Dann, Jr., of the company, reported that the third hundred thousand bags were being mailed.

The campaign has become so popular that the oil company established a mailing division, from which the sand bags are sent to all 48 states, as well as domestic possessions and Canada.

From Pennsylvania, one woman wrote the oil company, "Won't you please send me a bag of your magic sand? All my life, I've wanted to see Florida. I'm nearing the end of my life, and am too poor to make my wish come true. I guess only a miracle could do that. Please send me some sand for my shoes and maybe my wish will come true."

An executive of an oil marketing company who was vacationing in Florida came into an Orange State station and wanted bags of sand mailed to all the other executives of his company. He said it was something for them to ponder over.

THE Orange State Oil Co. reports its offer of a bag of sand and tag has caused thousands of motorists to stop at its stations to buy gasoline and oil. Moreover, it has given station attendants an easy and pleasant method of approaching customers, and has made these customers more inclined to listen to sales talks and to wait for more service, Mr. Dann said, because motorists are so busy addressing "Sand In Your Shoes" bags to friends and relatives.

Sand — even tons of pure white grains—must have been a disappointment to Ponce de Leon, if he was really in search of the mythical Fountain of Youth. But this same sand, "magic" sand, is no disappointment to the Orange State Oil Co.

Little Extra Effort Is All the Cost Of Change-Over Selling

Calling attention to things the cars actually need—Suggestive Selling—is a service to motorists and is the most effective way to sell Change-Overs, says Fred E. Bergfors, the president of the Independent Oil Mens Association of New England.

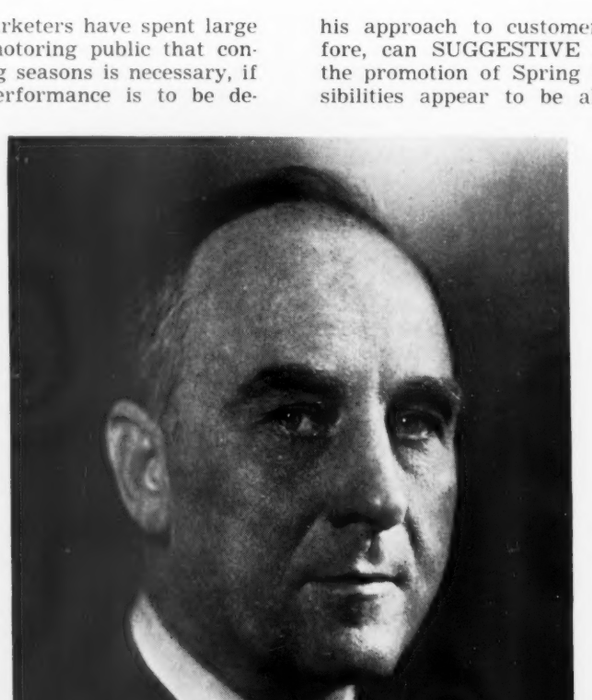
Here is his message to oil marketers, in NATIONAL PETROLEUM NEWS campaign to make the coming Spring Change-Over period the most successful the oil industry has ever had. Mr. Bergfors for many years has run his independent Quincy Oil Co., in Quincy, Mass., a suburb of Boston, and been active in the interests of New England independent oil marketers.

By Fred E. Bergfors, President, Independent Oil Mens Assn. of New England.

For a number of years oil marketers have spent large sums of money to educate the motoring public that conditioning automobiles for changing seasons is necessary, if the utmost in enjoyment and performance is to be derived from motoring.

However, in spite of the increasing intensity of this campaign in recent years, it is quite evident that there are still many station managers who are not alert to the possibilities of increased volume and profits through INTELLIGENT and TACTFUL SUGGESTIVE SELLING.

Perhaps there are many who do not even understand the true meaning of Suggestive Selling. It might be fitting to explain here that Suggestive Selling means the selling of additional merchandise or service over and above the customer's original intended purchase. For instance, the aggressive station manager, after completing the gasoline service, will always take advantage of his observations and suggest the need of an oil change, windshield blade, fan belt, tires, batteries, etc. How much he will sell depends entirely upon how much he practices this method of selling and how tactful he is in his approach to customers. To what better use, therefore, can SUGGESTIVE SELLING be put than toward the promotion of Spring Change-Over Service? The possibilities appear to be almost unlimited when one considers the obvious need of changing to heavier motor oils and gear oils, the flushing of crankcase, transmission and rear end, chassis lubrication, repacking springs and front wheel bearings, flushing the cooling system, etc.



Fred E. Bergfors

A complete changeover in the spring gives opportunity to get repeat business later on by selling periodical oil changes and chassis lubrication. It is interesting to note that many 1940 automobile instruction books recommend more frequent oil changes. There appears to be an increasing tendency toward 1000-1500 mile oil changes and fewer recommendations to change between 2000 and 3000 miles. This seems like a good point to stress during the coming season.

The Spring Change-Over season will soon be here and Suggestive Selling should play a tremendous part in the much sought-for increased volume and profit. As for the cost of Suggestive Selling—just a little extra effort.

Servicing Gives the Leads For Spark Plug Sales

● "Plugging" for additional plus-profit business in oil marketers' Spring Change-Over campaigns might well be the title of this article. For checking spark plugs, after severe winter driving, is a service to motorists and can be made a logical and profitable part of the spring conditioning work at station.

Sales records of manufacturers and dealers show the largest individual market for this automotive necessity comes in April and May. The oil marketer and his stations during this period can tie into the national advertising programs of the spark plug manufacturers directed at creating public demand for this replacement item.

Manufacturers estimate the annual market for spark plugs in 1940 will be around 75,000,000 plugs. One estimate runs as high as 100,000,000 units. The list price for most of the national brands of spark plugs, and the price most generally charged by service stations, is 65 cents each. Using this figure, the total market value for plugs during 1940 will range between $48,750,000 to $65,000,000.

Manufacturers estimate that more than 20 per cent of the 1940 spark plug replacement market comes during April and May, the height of the Spring Change-Over season in most marketing areas. Thus the market for spark plugs alone in the coming Change-Over period will be from nearly $10,000,000 to $13,000,000.

The extent to which the oil marketer and his stations and dealers share in this spark plug business depends on the servicing and intelligent sales approach they offer. As with batteries, servicing is necessary for a complete job of merchandising spark plugs in the stations.

In recent years, spark plug manufacturers have developed the spark plug cleaning and testing method of merchandising plugs. They emphasize that, to properly sell this item, the station must have an opportunity to get the plugs out for a test. The cleaning service, generally offered for the nominal fee of 5 cts per plug, paves the way for the station operator to suggest this service in order to be able to inspect their condition. Spark plug manufacturers admit, that, while this price for cleaning and testing is not profitable in itself, it is necessary to the proper merchandising of this item.

Lately, these cleaners and testers—or merchandisers—have been designed with a definite aim at "eye appeal" and at dramatizing with their flashing spark the need for replacement. Service station operators say, they are an invaluable aid in selling plugs.

After the plug has been removed for testing, the station operator can show how the plug is operating in comparison with the performance of a new plug in the tester. If he is not successful in selling a new set, he can use the cleaner and thoroughly clean each plug, adjust the gaps on the electrodes, and again test, using a new plug to show the comparative condition of the old one.

At the same time, the operator should examine for splits in the insulator tips, examine the gaps for excessive wear; and whether or not, a sale has been made, he can suggest to his customers that plugs should be examined, tested and cleaned every 2000 or 3000 miles, and thus have another chance at selling a set of new plugs within a reasonably short time.

Some manufacturers emphasize that periodic inspection, cleaning and gap-setting is necessary for the station to get the maximum out of its merchandising program, and for the car owner to get the maximum performance from his spark plugs. One suggests that stations should provide this service for all customers every 3000 miles.

Most Prospects Can Be Sold Full Set of New Plugs

Indicative of the possibilities of spark plug sales through service are the figures of one manufacturer, which show that two out of six plugs taken out for cleaning will need replacement, and the station must get a chance to clean them to sell the replacement.

If the station employe or operator can sell one new spark plug, more than 50 per cent of the time, he can sell a new set, with little additional sales effort, manufacturers say.

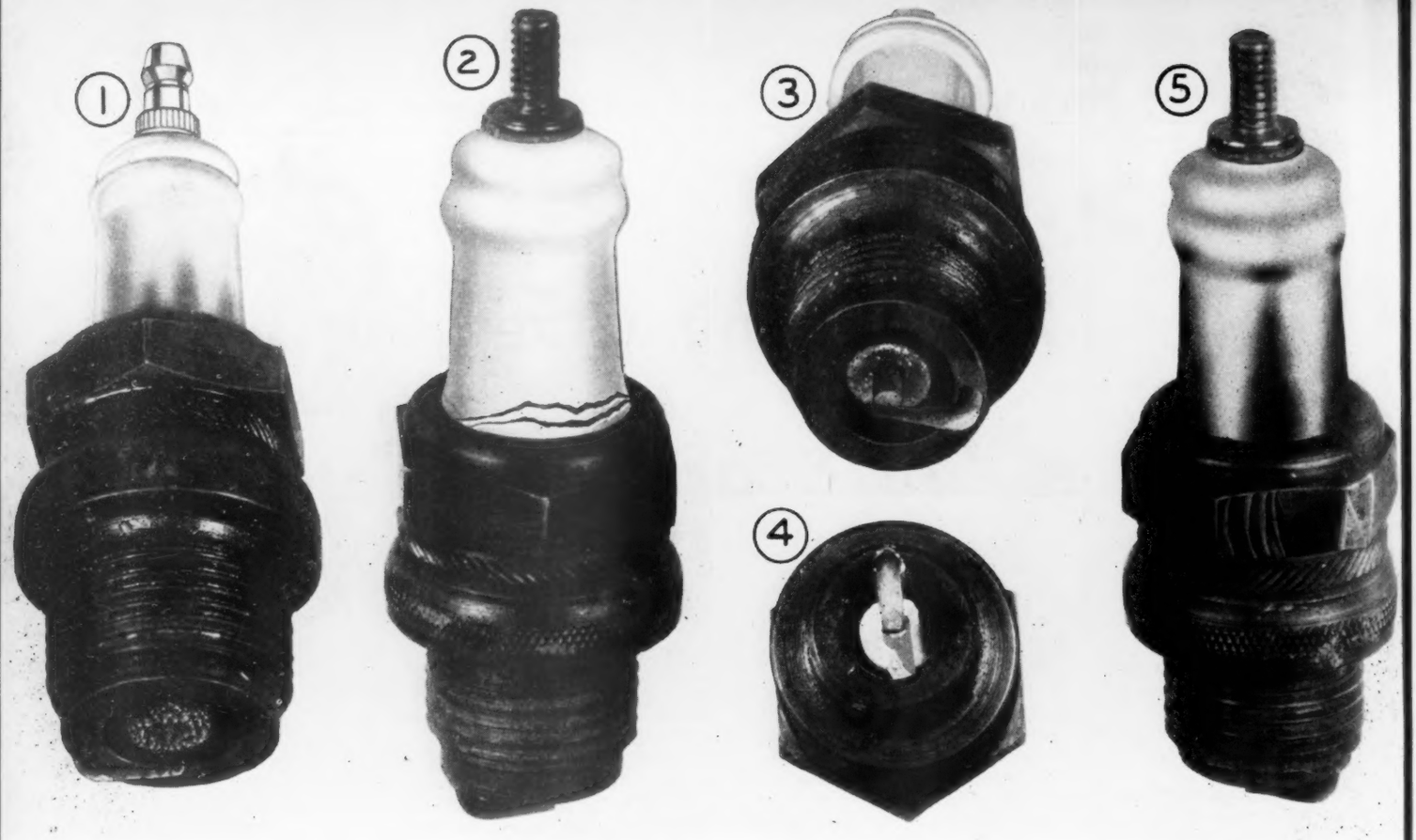
This is borne out by a survey covering more than 600 purchasers of spark plugs, cited by one manufacturer. More than 60 per cent of the spark plug purchasers bought a complete set of four, six or eight plugs, the survey showed. Two stations which are doing a good job of merchandising plugs both reported that more than half of their sales were in complete sets. The average number of spark plugs on cars operated today is 5.6 plugs each, manufacturers say.

The service station operator's approach to selling spark plugs depends, of course, on the service being rendered to his customer.

Many times, one manufacturer reports, we have had station operators tell us they can sell spark plugs in the lubrication room, but cannot start the sale out on the drive. Actually there are more opportunities on the drive to start a plug sale than anywhere else.

It is suggested that station operators include as part of the under-the-hood service, when checking oil or adding water, the wiping off of spark plug insulators. By this the operator prevents a spark short on the outside, especially if the car is kept in a damp or cool garage at night and condensation may form on the insulator.

One manufacturer adds that the station operator should make the following suggestion to customers: "If those



Conditions which the service station operator may find in customers' spark plugs are shown in the above picture. Accompanying article details the causes of the above conditions. **1**—Badly burned plug, insulator nose blistered, fused or broken and electrodes excessively worn; **2**—cracked insulator top due to careless handling; **3**—side electrodes excessively worn; **4**—split insulator nose, due to bearing or straining of electrodes when resetting gap; **5**—blow-by between shell and insulator top. In most cases plugs showing this sign are badly burned. Photcgraphs courtesy The Electric Auto-Lite Co.

plugs are that dirty on the outside, it is possible that they are just as dirty on the inside. We do not charge for testing, and if they need cleaning, our charge is only 5cts. per plug." Again, this approach is aimed at getting the plugs out for close inspection.

The service station operator should keep before him at all times the fact that he must establish the need for new plugs before he can make sale, and, to establish that need, he must know the condition of the plugs in the car. With the exception of cracked insulators plainly visible from the outside, this can only be ascertained by removing the plugs from the engine.

THE service station operator has a final push, or sales clincher, in selling spark plugs, by bringing out that new plugs will pay for themselves in a relatively short time in increased gasoline mileage. This angle has been used by manufacturers in their consumer advertising, and it can be used to excellent advantage by the station operator. Also, in this day, when everyone demands snap, and get-up-and-go in a car, the spark plug sale can be approached from the angle of the loss of power and pick-up where the plugs are fouled.

In this sales talk, the station operator should stress that the old plug delivers a weak spark to fire the compressed gas, resulting in wasting much of the fuel entering the cylinder. A new plug will deliver a sharp, full spark at the correct time, utilizing to the fullest extent the power in the gasoline. A demonstration on the testing machine, with an old plug side-by-side with a new one, will add weight to this sales story.

Checking customers' speedometers is another lead to a spark plug sale, say oil marketers and plug manufacturers. If the speedometer shows around 10,000 miles or more, the operator should suggest an examination of the plugs, stressing that the average life of a spark plug is about that mileage.

That biblical axiom, "Ask and ye shall receive", was never truer than for the merchandising of spark plugs on the oil station drive and in the lubritorium.

The station operator who wants to do a complete job of merchandising this plus-profit should never stop asking his customers how their cars are performing, say oil marketers with experience with this item. As Dale Carnegie would probably put it, the best way to make sales to your customers is to be interested in their cars.

If a customer suggests his car might be losing some of its snap or acceleration, the station may help remedy this situation by suggesting a spark plug replacement, or at least cleaning and resetting the gaps.

Customers who might complain about the mileage they are getting on gasoline when asked how the buggy is running leave a wide-open avenue for the station operator to suggest a new set of plugs.

Such complaints, as well as those of poor starting, missing, or loss of power, can be made an approach for spark plugs sales or cleaning and resetting the gaps, which eventually means a sale, by the wide-awake station operator or employe, it is pointed out.

IN the lubritorium the possibilities for selling plugs are more numerous, and easier to follow through. Many station operators who successfully merchandise spark plugs always make testing the plugs a regular part of the routine of a lubrication job.

The Spring Change-Over campaigns which will bring many customers in for changing crankcases, differentials and transmissions from winter to summer grade oils, will provide excellent opportunities for the station to push spark plug sales.

When selling new tires, the operator can suggest that worn spark plugs are also unsafe, one manufacturer adds, by failing to respond and give the acceleration needed to get out of a tight spot.

Manufacturers suggest that the sta-

Refining comes back

When people compliment us on the fine appearance of our new Dubbs unit we tell them the credit should go to U. O. P. . . . We value greatly the cooperation you have shown us in designing, building and starting the operation of this unit—I. A. ANSON, *president of Ben Franklin* to J. G. ALTHER, *vice president of Universal*

Once Ardmore, Oklahoma, was a booming refining center, but times changed Production went off, refineries shut down, oil companies moved away

For years refining was a lost art in Ardmore but now Ben Franklin Refining Company has brought it back to life

Ben Franklin is running 3500 barrels of crude oil per day This means pay checks for workers—better business for Ardmore

And Ben Franklin has installed a Dubbs-cracking unit—cracking 2000 barrels a day

Congratulations to the Ben Franklin officers on their good judgment Congratulations to Ardmore on its good fortune

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

tion salesman impress upon the prospective one-plug purchaser, that the other plugs in his car have been wearing out at about the same rate as the plug which failed and should also be replaced. He can stress the added performance and mileage to be expected with an entire set of new plugs which would not be achieved if only one or two new plugs were installed.

Spark plugs for replacement on the cars operated today have been standardized so that the oil marketer, or the service station need not tie up much capital in stocks of this item. Manufacturers say that a total stock of eight different type plugs will service more than 90 per cent of the demand to be met at the service station.

However, in stocking this item, as well as all other items sold for replacement through the filling station, the operator should first study his customers' needs. By noting the type of cars which predominate among his customers, the station can determine the proper number of each type of plugs to keep in stock. Plug manufacturers furnish stations with lists showing the type plug need for each car. This is handy in determining the number and type of plugs the station should carry.

One manufacturer recommends that marketers and stations should figure on turning their purchases of plugs at least 10 to 12 times a year, and to purchase on that basis. This, he points out, will allow the marketer and the station operator to take full advantage of the capital invested in the sale of this item.

The only other expense connected with the sale and servicing of spark plugs is the initial cost of the cleaner and tester. Cost of these, from some manufacturers, depends on the amount of plugs purchased but will range from about $3.75 for the cleaner alone, up to around $18 for the combination cleaner and tester, which some manufacturers sell.

As with most items sold through the service station, or wholesaled by the marketer, the profit on spark plugs depends on the volume purchased, and the amount sold. Discounts are on a sliding scale. One manufacturer estimates that the station operation will make a gross profit of about 40 per cent, and the marketer about 20 per cent, in the sale of plugs.

A number of different reasons may cause spark plugs to fail. However, station operators and employes should stress the point that length of service is the cause of the plugs wearing out, in most cases. Following are the different causes of failure, as reported by manufacturers. The condition of the spark plugs sometimes may indicate more serious trouble which the attendant should call to the attention of his customers.

Types of Defective Plugs And Causes For Failure

BROKEN INSULATOR TOP, as shown in an accompanying picture is caused by careless handling, accidental striking of the plug, improper installation or the use of an improper tool in installing.

Good performance cannot be obtained from a plug unless it has been properly installed. The gap must be set according to manufacturer's recommendation. Socket wrenches only should be used when installing. An open end wrench places a strain on the plug which may damage it. Proper tightening is most important. One manufacturer estimates that 50 per cent of all plug trouble is caused by plugs being too lose in cylinder heads. The plug should be tightened until the seat gasket is entirely compressed.

SPLIT INSULATOR NOSE (see picture) is due to bending or straining the electrode, and may be caused when resetting the gap, or through careless handling.

SIDE ELECTRODE EXCESSIVELY WORN (see picture) is caused by plug not being properly tightened, or plug is too hot for this application. Also may be due to use of high frequency coils, resulting in excessive amount of current passing through plug gap.

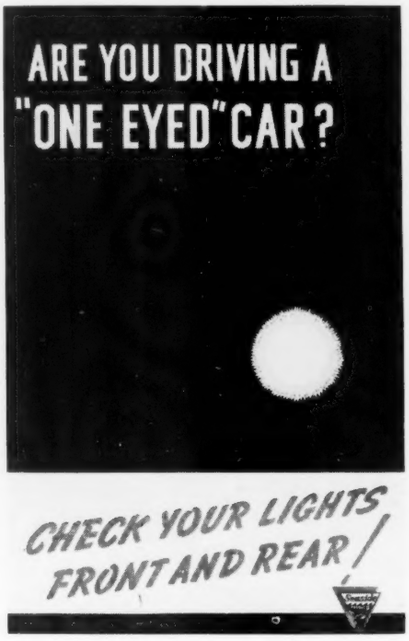
BADLY BURNED, or insulator nose swollen or broken and center and side electrodes excessively worn (see picture). This may be caused by a number of reasons not properly tightened, plug too hot for application, exhaust valve overheated, causing pre-ignition and abnormal temperatures in chamber, faulty cooling system, insufficient tappet clearance, valve sticking, lean mixture, retarded spark, excessive spark advance and carbon in combustion chamber.

BLOW-BY between radiator case and insulator top. This may be caused by plug operating at abnormally high temperatures, or by any of the troubles listed for "badly burned" plugs above.

EXCESSIVE CARBON DEPOSITS are indicated by the presence of a black coating on the insulator nose, or between the nose and shell. Temporary remedy obtained by cleaning. Plug may be too cold for operation, mixture too rich, or engine pumping oil due to defective piston rings, worn out cylinder bores, or the use of too thin oil.

Station operators must be cautioned, one manufacturer says, that a "sooted" plug, that is one covered with a soft layer of carbon or "soot", is not necessarily a fouled or short circuited plug. This condition may be caused by prolonged operation with no load on the engine. Opening the throttle for a few minutes will burn this soot off the plug.

Station Signs Keyed To State's Drive



Co-operating with the California department of motor vehicles in its current drive against cars with only one headlight, Seaside Oil Co. is featuring at its California and Arizona service stations, "A" boards which ask, "Are you Driving a 'One-Eyed' Car? Check your lights front and rear." This program is in the interest of public safety, according to F. E. McClaren, of Santa Barbara, Seaside general sales manager.

Boston Fuel Oil Group Is Studying Costs

Weighted average costs for distributing fuel oil in Boston are set up as part of the program of the Fuel Oil Distributors' Council, and serve as a bogey for more efficient operations of individual member companies, states Clyde G. Morrill, advisor for the group.

Organized a year and a half ago, today between 50,000,000 and 60,000,000 gallons of fuel oil distributed annually are represented in the membership in the council, said Mr. Morrill.

The group has a subsidiary organization of credit managers, which has greatly reduced members' losses from bad accounts. By checking customers' mis-representations and misleading reports from salesmen, conditions which formerly disturbed the market have been eliminated, it is said. Price postings of all members are kept on file.

The council is carrying on a consumer research program, by which it is hoped a policy on servicing burners can later be adopted, Mr. Morrill stated, and a public relations advertising program is also being considered.

YOU'LL NEVER KNOW *Until you try!*

WONDER IF THERE'S ANY BUSINESS?
WONDER IF I CAN GET UP?
WONDER IF I CAN BLUFF THIS THROUGH?
WONDER IF I COULD SWIM IT?
I WONDER ???????
WONDER IF THEY'LL TAKE IT BACK?

Wonder if there's any profit for me in this Giant Tire Sales Plan for oil jobbers that gives me exclusive territory, self liquidating initial stock order, budget financing and *good* jobber discounts?

Brother—You'll never know until you try. Why not mail their coupon for full details right now?

THE GIANT TIRE & RUBBER CO. • FINDLAY, OHIO

Gentlemen: Please rush complete details of the Giant Tire Sales Building Plan for oil jobbers.

Name _____

Address _____

City _____ *State* _____

Many safety features are incorporated in these modern transport units of Standard Oil Co. of Ohio, which carry 6000 to 6400 gallons of gasoline at a load. They operate 24 hours a day and are given a most thorough inspection by company mechanics regularly every week

Keeping Trucks Running 24 Hours a Day

STANDARD OIL CO. of Ohio, operating its own truck transport units of 6000 to 6400 gallons capacity, 24 hours a day, insures the safety in service of these units, through the following four principles:

1—Special attention is given in the design of tanks, fittings and auxiliary equipment of the truck itself to safety, as well as maximum performance.

2—Every unit is thoroughly inspected every week, from front bumper to tail-light.

3—Loading and unloading equipment, when it was changed to reduce trucks' idle time, was also designed to promote safety.

4—Careful selection and training of drivers. No man is now driving a transport truck for Sohio, who has not been with the company at least seven years.

When the company first experimented with highway transportation of petroleum products in 1926, it purchased a four-wheel, 1600-gallon trailer. This trailer was pulled to outlying points of distribution behind a milk tank truck which had delivered its load in metropolitan Cleveland. On the return trip the milk truck picked up the empty trailer and returned it to the Cleveland refinery, to be filled for the outgoing trip.

From that start the company began operating its own semi-trailer and trailer unit in 1927. The capacities of these truck trains were gradually stepped up from 4200 to 4800, then to 5600 gallons by 1931.

The development of new lighter weight alloy steel for tank construction, which made possible increased payloads, without lessening the margin of safety, as well as lighter weight construction of the tractors and the tank under carriages, led to the increase in the size of the units to 6000 and 6400 gallons by 1934 and 1935, with the same overall loaded weight as the older, smaller units.

As well as using stronger, lighter steel for tank construction, the company incorporated safety features on all units to keep pace with the increased hours trucks are operated daily and with the larger loads they carry.

All ten wheels of the tractor, semi-trailer and trailer are equipped with railroad-type air brakes. Brake hoses are connected with an emergency relay valve, which stops the entire train when a hose breaks. If the trailer should break away from the rest of the unit, it would sever a hose and automatically stop both the semi-trailer unit and the four wheel trailer.

All compartments of the tanks are equipped with inside emergency valves which would prevent spilling in case of accident to the large unloading valve. These valves also have a remote closing feature, which makes it possible to stop the flow of gasoline in case of spillage or fire, from the opposite side of the truck from the valve control box. These emergency valves also have a fusible link, which, in case of fire, or overheating will force the emergency valves shut.

The exhaust manifold of most of the

GREATEST FRIENDMAKER

A DEALER EVER HAD

SHELL'S SHARE-THE-ROAD CLUB is the Shell dealer's greatest guarantee of steady gallonage.

• • •

Millions of cars carry the emblem of the Share-the-Road Club . . .

Each car stopped at a Shell station to get this emblem . . .

The car owner left his name and address with the dealer when he joined the Share-the-Road Club . . .

And almost every time, he bought either gasoline or motor oil or both.

• • •

BUT MORE IMPORTANT — dealer and car owner met under the best possible circumstances . . . **DRAWN TOGETHER** by their common interest in fighting a nation-wide nuisance . . . ***Stop-and-Go driving.***

The Shell dealer offers the motorist two distinctive and exclusive weapons against Stop-and-Go . . . *the Share-the-Road Crusade* to cut the AMOUNT of Stop-and-Go . . . SUPER-SHELL to cut the COST.

Such strong selling advantages are rare indeed in the oil industry.

• • •

This is only one of a series of strategic moves which bring Shell dealers and their customers together on a basis of mutual interest . . .

THE SHARE-THE-ROAD CRUSADE is more than printed advertising . . . it is a Dealer-Participating, Customer-Participating Plan which is making the SHELL FRANCHISE more than ever an asset to be sought after and retained.

For further information concerning the details of what Shell has to offer, we suggest that you talk to a Shell representative today.

SHELL OIL COMPANY
INCORPORATED

company's tractors is under the cab and does not extend under the tanks of the semi-trailer, so that danger of fire from gasoline leaking from the tank or dome during transport onto the hot manifold is eliminated.

Trucks are governed to speeds consistent with the power necessary to operate them with safety. The safety factor enters into the governing of the speed of trucks because, if held down too low, the resultant loss of power would adversely affect hill-climbing and the ability of the unit to keep up with the normal movement of traffic.

Ladders on the transport units are enclosed, to keep unwanted passengers from hitching rides and also to prevent the accumulation of ice and snow which would make them dangerous for the truck operator to use. Tanks are fitted with hand rails on the side for safety.

Safety features of Standard of Ohio transport trucking units shown in this picture include the wide flat catwalk of metal with a special tread, the long loading hose reaching well into the tank to prevent splashing and to lessen evaporation, and the bronze bushing connecting the hose with the loading line, to eliminate danger from spark if it comes in contact with the side of the dome

EACH loading dome is fitted with a safety pressure release valve. It has a fusible plug which will melt in case of overheating.

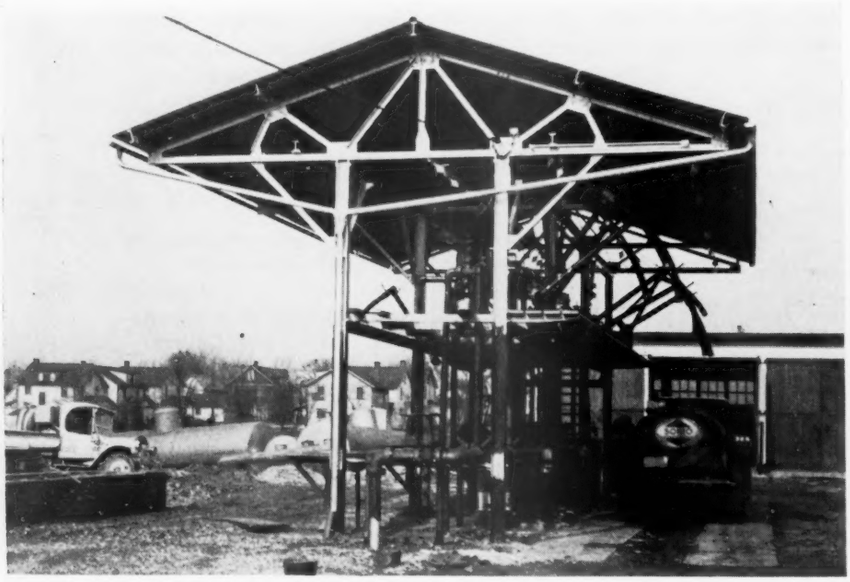
The compartment where the unloading hose is carried has a small opening in the front to prevent the accumulation of gasses inside the chamber.

The draw bar connection between the semi-trailer and the trailer has been designed to eliminate the possibility of side-sway. All transport units have the connection at the same height, making it possible to inter-change trailers. The connections between trailers and semi-trailers are perfectly horizontal, adding to the elimination of side-sway. The draw bar pin is made of special steel to resist wear, and is made long enough to prevent it from bouncing out in the event the cotter-key lock comes out.

The fifth wheel, or turning base for the front wheels of the trailer, is fitted with a lock which holds the front wheels of the trailer rigid for straight backing.

The top of the units have a flat catwalk for safety while operators are loading or checking domes.

Trucks supplying the larger service stations and bulk plants are equipped with an electric pump, which runs off current supplied at the unloading point. The motor and pump are carried in a locked compartment on the left side of the semi-trailer. Pumps have capacity of 200 gallons a minute, powered by a five horsepower motor. Cord for the power is heavily insulated, and the pump and motor are constructed with vapor proof fittings throughout. Unloading points have fool-proof electrical receptacles, or plugs, to furnish power to run the pump motor. It is impossible to get current if the plug is not inserted and tightened properly in the receptacle, and this eliminates the danger of fire from a spark or shorting at the point of contact.



Two-sided loading rack designed by Standard Oil Co. of Ohio to speed up loading of transport trucks, while maintaining all provisions for safety. The low side of the rack is for trucks for city deliveries, the higher side for transports. Six loading spouts are provided

THE latest type automatic flares, one gallon tetra chloride fire extinguisher and a first aid kit are carried on all units.

Standard of Ohio's transports travel between 5000 and 7000 miles each month, and each week are taken out of service for a day and subjected to a thorough bumper-to-bumper servicing and inspection.

Literally, before the unit has rolled to a stop in the company's garage, three experienced mechanics "attack" it. The front wheels are put up on jacks and the oil drained and each man begins the tasks assigned to him.

Inspection forms outlining each item to be inspected on the tractor, semi-trailer and trailer are provided, and as the work is completed, the form is checked. These forms are made of heavy cardboard, and have space for checking virtually every mechanical part of the unit.

While all parts of the entire unit

LOOK... I'll show you how neoprene hose Is 4 TIMES BETTER!

LOOKS BETTER, EASIER TO CLEAN. Smooth cover can't pick up dirt and grit. And oil smudges wipe off fast. Keeps station looking cleaner.

IT'S LIGHTER. Easier to whip around cars on busy days. You don't have to wrestle with neoprene hose, even in coldest winter weather.

MORE FLEXIBLE. No heavy clumsy lining to kink, crystallize or break. Neoprene smooth-bore hose is as easy to bend as a piece of rope.

LASTS LONGER. Neoprene hose stands up better under general wear and tear. Won't crack or crush.

NEXT time replacements are due, take a tip from the men on the pumps. Ask your supplier for details on neoprene smooth-bore hose, or write us for a list of manufacturers. It's the hose that's popular with everybody...yes, even with the man who pays the bills! E. I. du Pont de Nemours & Co., (Inc.,) Rubber Chemicals Div., Wilmington, Del.

DUPONT **NEOPRENE**

gas pump hose

When ordering smooth-bore pump hose, don't order "synthetics"—Specify Neoprene

The first type of semi-trailer and trailer adopted by Standard of Ohio in 1927. It carried about 4000 gallons and was operated 12 hours a day, as against 24 hours for the units of over 6000 gallons capacity the company uses today

are gone over thoroughly, special attention is given to the equipment which controls the safe operation of the unit. Tanks, dome gaskets and fusible plugs are inspected and replaced if necessary. Brakes, brake hose, draw bar equipment, emergency tank valves, the fifth wheels on the tractor and trailer, tire condition and inflation, as well as the tractor steering equipment are stressed in the inspection.

It takes about eight hours for the three mechanics to complete the job of inspection, making any replacements or minor repairs and to service the unit.

In speeding up loading and unloading of transports, the company has also added to the safety of this operation.

FLEXIBLE hose at unloading racks is sufficiently long to reach well down into the tanks on the trucks, preventing splash and evaporation loss and their hazards. The ends of the hose are fitted with bronze bushings to eliminate the possibility of a spark being generated, as might be the case if a steel bushing came into contact with a steel tank.

An added safety precaution followed in loading the transport units is to fill the four-wheeler first, thus allowing time for the exhaust manifold of the tractor to cool before the compartment next to the manifold is loaded. This precaution against the danger from spillage is taken despite the fact that on most tractors the manifold does not extend beyond the cab of the tractor.

The company hires only drivers who are experienced in driving these 55 to 60-foot tank cars of the road. Drivers hauling out of Cleveland all have had a minimum of seven years service with the company.

They are not paid on a trip basis, and the company insists that they waste an hour rather than take a chance. Not being paid on a trip basis, the drivers do not find it necessary to "high-ball" on the road endangering other lives and property as well as their own and the equipment.

THE company stresses politeness on the road at all times, and the men are instructed to help motorists in trouble as much as possible.

Some of the drivers operating the Ohio company's transport units received their experience in the army and others were recruited from other companies where they had had experience in driving this type of unit.

The inclusion on all equipment of all possible helps to safety, and the use of the lighter but more expensive steels to increase capacity without sacrificing safety, resulted in a greater initial cost of the transport units, which necessitated making greater use of the equipment, to reduce the per gallon delivery cost.

During its experimental stages, the Sohio company had increased its operations to 16 hours per day by 1931 and about 18 hours by 1933. In 1935 an extra driver was added to each unit, making it possible for them to operate on a 24-hour day basis.

However, after the new larger units were put into operation in 1935, the company realized that loading and unloading facilities had not kept pace with the improvements in the transport equipment, and it was found that considerable time was being lost by congestion at loading racks and the inability of the rack to efficiently handle the large equipment.

Changes were made in loading and unloading facilities to cut down on this "lost" time, in order to keep the transports moving as much as possible.

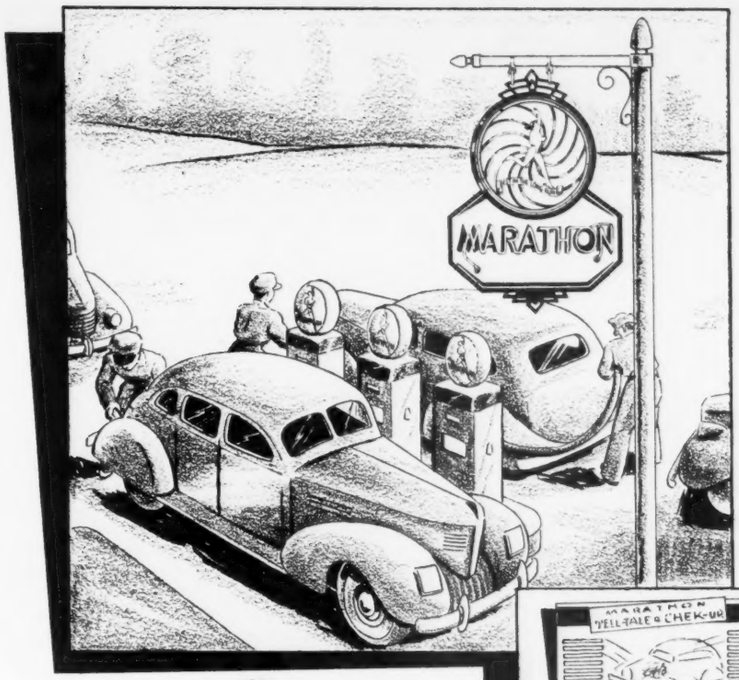
At many places the company had loading racks where it was necessary to load the semi-trailer and then drive the units up so that the four-wheeler would be spotted for loading. These racks were extended to provide one-spot loading. In other cases where there had been congestion, two-sided loading racks were installed.

Pumps at loading racks were increased to provide loading speed of approximately 500 gallons per minute, instead of 200 gallons. Two and two and one half inch loading lines were changed over to three-inch lines.

WHILE unloading facilities varied considerably, an effort was made to speed up unloading at the high volume stations and bulk plants, where the saving in time would be material. Electric pumps, with 200 gallons per minute capacity, were put on the transports, running off current provided by the station. This operation reduced the unloading time of a 6000-gallon train from about one and one quarter hours to approximately 30 minutes. Unloading lines were changed over entirely to three-inch outlets.

As the company put additional new transport equipment into service, older units were not entirely eliminated, due to the increase in the volume of gasoline transported. Certain of the older units became available as extra equipment and were distributed about the company's shipping points, on the basis of one extra tractor to each three or four regular trains in operation. Whenever one of the regular tractors would require repairs, the extra would be pressed into service.

THE DOUBLE-BARRELED MARATHON PROFIT PROGRAM FOR 1940



1.

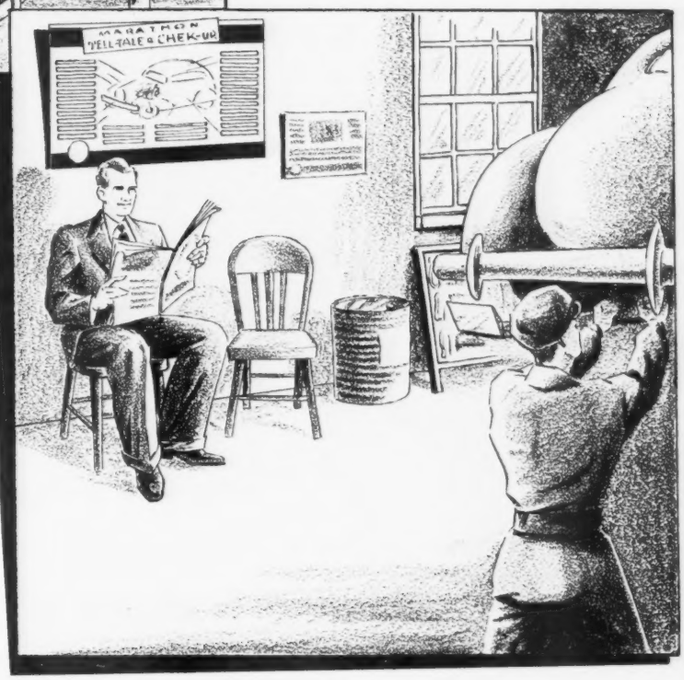
ADVERTISING THAT MAKES MORE CUSTOMERS

Millions of motorists will try improved Marathon Gasoline and Marathon Endurance Motor Oil as a result of these efforts:

(a) "MARATHON MELODIES"—30-minute novel musical show on special N. B. C. Network.

(b) Large-space newspaper advertisements.

(c) Spectacular outdoor displays strategically located.



2.

SERVICE PROMOTIONS THAT MAKE MORE SALES

Realizing that jobber and dealer profits are based on more than gasoline and oil sales, we are also offering these three outstanding methods of making each customer mean extra revenue:

(a) "DOORWAYS TO DOLLARS"—dynamic campaigns for every season.

(b) QUIK-SIX SERVICE—service steps for every motorist.

(c) MARATHON TELL-TALE CHEK-UP—sensational free service that tells a tale that makes a sale.

MARATHON
BEST IN THE LONG RUN

Ask our representative for more details of our 1940 Profit Program for jobbers. Write, wire or 'phone.

THE OHIO OIL COMPANY

INCORPORATED

GENERAL OFFICES: FINDLAY, OHIO

Stopping Profit Leaks In Oil Marketing

Increasing importance is being given the independent marketer and his part in building sales for the oil industry. Paul Ryan of Cleveland, president of National Refining Co., told the Indiana Independent Petroleum Assn. March 7 at its convention in Indianapolis. Opportunities will be larger in 1940 for those marketers who have their businesses on a sound operating basis, he said.

He enumerated in his address, a principal portion of which is published here, important practices successful marketers of today follow to keep their costs down. Among these points were:

1—They have stopped being Gallonage-Minded and are Profit-Minded instead.

2—They recognize the importance of using up-to-date methods and equipment.

3—They guard against too high a personnel cost at their bulk plants.

4—They continually analyze their transportation problems to achieve maximum economy.

5—They allow dealers satisfactory margins and help them build up their gallonage, in place of putting in competing outlets.

6—They recognize unprofitable outlets and either work to build up sales there, or pull out their equipment.

By Paul Ryan

President, National Refining Co.

ALL of us in the marketing end of the business are going to be forced to make profits on our marketing, if we are planning to continue our existence as marketers. With the prospects of reduced prices confronting us, profits can come from only one source—reduced expenses by more efficient operation!

The use of marketing practices and procedures which may not be profitable has not been confined in the past, to the petroleum industry. Every other industry has gone through these same difficulties that we, in the oil industry, are now encountering. Our facing of these difficulties may have been somewhat delayed because of the profits in the other branches of our work; but other industries have met them, and have triumphed over them. We, too, can conquer them!

The Department of Commerce estimated a few years ago, that 10 cents out of every dollar spent by the consumer was wasted on ineffective marketing procedures in various industries. Based on a national income of 70 billion dollars a year, this would mean that 7 billion dollars were wasted by the marketing practices of various industries.

The basic reason for good jobbers being so fortunate now is that, in the past, they have proved that they knew how to operate efficiently and profitably. For them the achievement of profit is no novel experience. They have known how to keep their expenses down, and have stopped long since being "Gallonage-Minded" and have become only "Profit-Minded."

I have with me, examples of companies which definitely prove that marketing brains are not confined to any size of marketing operation. Here is a jobber doing slightly less than $500,000 a year of gross business. He made approximately $18,000 net profit in 1939. Out of every dollar of sales, he converted approximately 4 cents into net profit.

Here is another case of a jobber doing a business ten times as large, or $5,000,000 a year. He made net profits of better than $180,000, or a little less than 4 cents net profit out of every dollar of sales. There are others of a similar nature, large and small, having as their single common denominator, the one factor—a profit-minded, efficient management!

Some companies have found, for instance, that if they rank their outlets in the descending order of their gallonage, the lowest 25% in number of their outlets produced only 5% of the gallonage, and bore 35% of the expenses. In other cases which have recently been examined, 50% of the outlets produced 15% of the gallonage and caused 60% of the expenses. These are not unusual cases; if each of us examines his own operations, there undoubtedly will prove to be similar examples close at hand.

The managements of these jobbing companies have long since recognized that profits don't "Happen". Profits are *made!* They must be planned for! A rigid control of expenses must be effected! A definite determination must be put into practice to accept only profitable business. These wise jobbers have resolved that they will

SPEEDS GEAR LUBRICATION!

ALEMITE DELUXE LOW PRESSURE BARREL PUMP *Measures at Control Valve*

Sell more gear changes with this money-saving, profit-building equipment. Belongs in every modern lubrication department! Helps merchandise your gear change service. Saves time in filling transmissions and differentials. Delivers approximately 10 pounds per minute! And the best part of it is, *you know you get paid for every ounce*—because the flow is accurately recorded at the point of delivery. No chance to deliver lubricant in excess of metered quantity due to hose expansion. Available either with or without casters; *simply lift off shell, raise pump on elevator,* to change drums. Pumps directly from original 100-lb. drum avoiding messy, wasteful handling. Positive air eliminator prevents air registering on meter even when drum is empty.

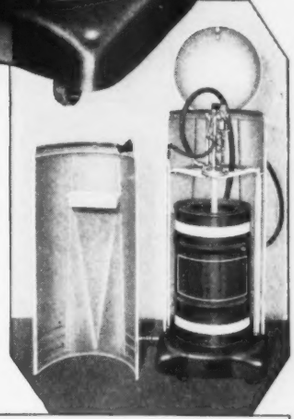
Operates on Normal Air Supply

This Alemite Model 6813 Low Pressure Barrel Pump operates on air pressure of 100 lbs., or more; without need for Air Regulator. Portable model comes complete with hose and meter. Stationary model for piping to several outlets (Model 6815).

Pays for itself in a few months under Alemite's convenient "Pay-As-You-Profit" Plan. Phone, wire, or write for complete details now!

**Slightly Higher West of the Rockies*

ONLY *16¢ A DAY PAYABLE MONTHLY



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MODEL 6820 HAND OPERATED LOW PRESSURE BARREL PUMP

Used independently or as accessory to power-operated barrel pumps. Delivers one pound of gear lubricant in 12 up-and-down strokes of pump. Comes complete with 5-ft. hose, non-drip nozzle, meter, and 4 ball bearing casters.

8c a Day*
Payable Monthly

MODEL 6830 ALEMITE DELUXE PORTABLE DRAIN

Attractive, practical, fits into any lubrication department, between lifts or against a background. Drain bowl can be raised to any desired height; concealed by cover when not in use.

5c a Day*
Payable Monthly

imitate only the virtues, and none of the vices of the larger integrated companies. As someone recently remarked, "It seems rather singular that much of the money is in the pockets of the large oil companies, and many of the best marketing brains are in the heads of the good jobbers."

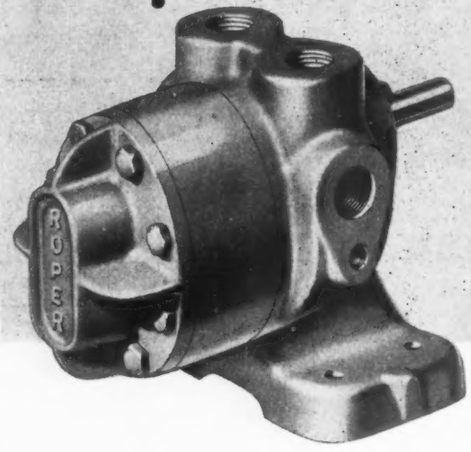
Discussions among marketing authorities tend to indicate that the industry is working toward helping good jobbers and good dealers become better—increasing their business and their profits, while simultaneously considering a reduction of marketing margins to a more equitable level, in line with the narrow spread permitted by the relatively high price for crude, and the comparatively lower-prices for refined products. The result will be that the total dollars of profit in a jobber's pocket or a dealer's pocket at the end of any month, will be greater. That is a desirable objective.

There is an increasing recognition on the part of these integrated companies, of the value of a jobber to the industry, to his community and to the supplying company. The jobber fills a needed place; he does work that no other functionary in an organization can quite handle. He has the local contacts, the friendships, and the personal touch which the representatives of the larger companies too frequently lack. The good local jobber often has a proved ability, resulting from his being "A business man in business for himself," which gives him a breadth of vision and a judicious approach to the solution of problems and which make his representation of a progressive supplying company most desirable for him and for his supplier.

If any jobber wants to be a good business man; if he wants to conduct his business in a profitable manner; if he uses constructive business practices of which the primary test is their permanence in making profits, if he recognizes that the motorist wants, not only gasoline and oil, but tires, batteries, accessories, and many other services, if he trains and enthuses his own personnel to be really effective salesmen; if he puts into practical application, the procedures which a progressive supplier furnishes him, then undoubtedly he can go a long way toward increasing his business and profits in 1940!

A *New* IMPROVED LINE OF

ROPER *Rotary* PUMPS



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TO MEET *Your* NEEDS MORE EFFICIENTLY

CAPACITIES	1 to 1000 G. P. M.
PRESSURES	Up to 1000 lbs. per sq. inch
MOUNTINGS AND DRIVES	21 Different Types to meet your requirements
SPEEDS	Up to 1800 R. P. M.
BEARINGS	Sleeve or Roller Bearings
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GEARS	Spiral, Spur or Herringbone
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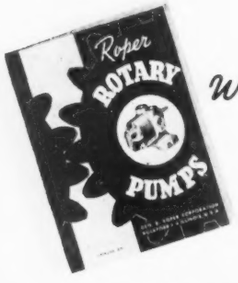

Write for the New

ROPER

Catalog 936

with illustrations, cutaway views, drawings, dimension and pumping capacity tables, and complete information on the new improved Roper line.

GEO. D. ROPER CORP. ROCKFORD, ILLINOIS

IF, on the other hand, any jobber chooses to be a parasite on the industry, merely a "middle-man" riding along on a fixed margin; if he is destructive in his business tactics; if he grabs "gallonage at any price," if he insists on his supplier's absorbing the losses on his own indefensible "deals"; if he wants somebody else to subsidize his wastes and high costs, and inefficiency—the inevitable mortality which follows inefficiency guarantees that there will be no place for that type of jobber in the petroleum industry. There is just not enough margin or enough business or enough profit in modern merchandising of petroleum products to keep such a jobber in business.

In every industry the manufacturers, who are the suppliers of the merchandise, recognize their responsibility, not only to manufacture products, but to manufacture customers for the jobbers and dealers who represent them to the public. You good jobbers are so lucky; you have these local contacts. You have trained your dealers to know your customers. You have in the palms of your hands, the only part of this oil business that brings money into the business. The imitation by others of your past success indicates that in the future, you will play an even greater part in sound marketing.

Particularly in the oil business is it true that the most vital sources of income and profits are not the physical facilities—the wells, the refineries, the pipe lines—but the human beings who sell and who buy the company's products. We want to do everything in our power to make our *personnel*, including our jobbers and our dealers,

more valuable to themselves, and, therefore, to our company.

Selling is, in our opinion, the most important phase in the present development of the oil industry. And selling is not a matter of goods, but a matter of people—the people through whom we sell, such as you jobbers, and the people to whom we sell, who are our customers.

Throughout this talk, we have spoken of *good* jobbers, *good* business men. What do we mean? We mean those efficient operators who keep their costs down, who serve the public well, who take a proper part in the constructive development of the industry of which they are a part, and who, above all, *make profits!*

Let us see how these good jobbers check themselves to make sure first that their own internal management is efficient and economical; and second, that their relations with their trade and their customers are intelligent and profitable.

9 Points for Marketer To Check To Reduce His Costs

Here are a few questions about their internal operations these "profit-making" jobbers have asked themselves:

1. In our office operations, do we have too many employees to do the work necessary for the control of our business? Are they of high enough quality, or could one-third less, of higher quality, do more work?
2. Do we adequately train these office personnel so that, for example, four trained, intelligent, capable people can do the work of six untrained and unskilled personnel? Have we given adequate recognition to the thought that we get only what we pay for, and that while we may pay more per man for a skilled man, we get more per dollar of expense?
3. Have we simplified our accounting procedures so that we have eliminated all complicated and useless records from our office work, and retained only those records which are absolutely necessary for the control of our operations?
4. Have we recognized that every extra dollar spent on nonproductive overhead increases the cost of our operations without adding a penny to the profit, and prevents the expenditure of an equivalent amount of dollars on productive salesmanship, which, when properly directed, might make several dollars' return for every one dollar spent?
5. Have we clearly analyzed our transportation problems to effect the maximum economies? Are we using the correct size of truck for our deliveries? Is the average size of our dump of gasoline adequate to be profitable? Is our station tankage big enough to handle direct deliveries without going through bulk plants? Have we trained our dealers to be good enough business men to pay for these large-size dumps? Have we analyzed the profitability of our consumer business? Are we making the dumps to the consumer trade large enough to be profitable?
6. Do we have too high a personnel cost in our bulk plant operations? Do we have bulk plants located too close together? Could we close some bulk plants and adequately serve the vast majority of our business more profitably?
7. Are our service stations equipped with modern, efficient equipment, to render the kind of service which our customers desire us to give, or which they will go somewhere else to get? Are our stations attractive, and clean in appearance?
8. Are our personnel, who represent us to the public, properly trained in the most profitable methods of serving the public? Have these personnel been intelligently selected, so that they do adequately represent us; or are we wasting their time,

NO Mechanical Parts—
—NO Attention Required

➔ What explains the nationwide switch to ECONO-VENT? Why has ECONO-VENT already been adopted as standard by America's most exacting bulk storage operators? What advantages can *you* expect from ECONO-VENT? Here is the answer:

1. *ECONO-VENT effects a positive saving of 50% to 75% in evaporation and storage losses.*
2. ECONO-VENT has *no* mechanical parts (no upkeep, no labor costs for inspection).
3. ECONO-VENT offers absolute protection against tanks bursting or buckling (operation is positive and unfailing—no danger of parts sticking—no dependence on human element).
4. ECONO-VENT minimizes fire hazard . . . keeps out dust and moisture . . . protects quality by retaining light ends.

Proof? We'll gladly submit it on request. Write today.

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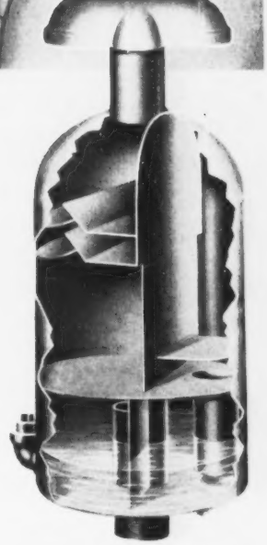
1005 Belmont Avenue Chicago, Illinois



——➔ ECONO-VENT's advantages are based on a revolutionary new principle of operation—a positive and unfailing principle that assures full protection plus freedom from mechanical attention plus *50% to 75% savings in evaporation and storage losses.* Write for particulars.

SAVE WITH *Econo-vent* LIQUID SEAL TANK VENT
THE NEW TYPE TANK VENT WITH THE REVOLUTIONARY *LIQUID SEAL*

MAY WE CALL AND TALK PROFIT?

★ To make better-than-average profit, you must have better-than-average sales appeal.

You can have this with Conewango Process VARNISH-FREE Motor Oil. *It gives you something to sell that the other fellow cannot offer—freedom from the nasty problem of engine varnish and sludge.*

Proof of performance is overwhelming. Actual attested photographs show condition of the motor. Indiana Oxidation tests by impartial laboratories prove its remarkable resistance to sludging and viscosity increase. The figures will amaze you—*and will amaze your trade.*

Only the Conewango Selective Adsorption Method can produce this oil. Alert distributors and jobbers are finding these sensational new oils the key to lower sales resistance and better profits.

Why not talk to Conewango—now? Write, wire, or phone. Our field representative will be glad to call.

Conewango Process
VARNISH FREE
MOTOR OIL

THE PROFIT LINE

THE CONEWANGO REFINING CO.
WARREN, PENNA.

and our time and money, trying to make them what they cannot be?

9. Are our sales people actual producers as salesmen; or do they just call on the trade as "order-takers?" Have we trained these sales personnel in the best methods of selling, so that they obtain an adequate percentage of the potential in the areas in which they work? Have we taught them the basic principles of selective selling, so that they spend our time and money on able-to-buy prospects, and not on obtaining customers whom no other supplier wants?"

13 Checks on Poor Outlets And Profitless Selling

Now let us ask ourselves questions about our trade relations, and our customers', which successful marketers have asked themselves:

1. Are we marketing our own products where there is an adequate potential business, or are we concentrating our efforts in those areas where the total volume of business is low?

2. Are we getting our profitable share of the business, or are our operating costs too high because we have too small a percentage of the business spread over too wide an area? Conversely, are our costs too high as a result of trying to hold an inordinate share of the business?

3. Are we giving away too much of our profits in the form of concessions, to get dealers to handle our products, so that they make their profits by BUYING our products from us, instead of by SELLING our products to the public?

4. Are we utilizing sound principles of selective selling, to select and develop good dealers in well-chosen areas with good potential. Do we help them to help themselves to make profits for themselves and for our company, or do we pick them at random, when, as, and if we can get them, and then leave them to their own devices?

   Do we allow dealers reasonable, but not excessive, margins per gallon and help them build their gallonage to satisfactory levels; or do we constantly keep them dissatisfied by juggling their margins and altering their rents, and by diluting their gallonage per outlet by multiplying "competitive" outlets handling our brand?

   Do we dump our money, or our supplier's money, into outlets of questionable profitability and then keep the investment and the current expense there, long after it has proved it can never become profitable; or do we really have the courage to reduce losses and save our money and our supplier's money by consistently following a wise policy of "Pull or Sell?"

   Do we really say to the dealer and mean it: "Mr. Dealer, you need 5000 gallons of gasoline and proportionate quantities of a balanced line of motor oil, tires, and accessories to break even. At the end of 60 days from now, we hope you are breaking even. If you are not, we will pull our equipment from your station, or we will sell it to you for cash." Do we say it, and do we mean it, and leave such unprofitable business for our competitors, or do we continue to hang on, and thereby increase our losses?

5. Are we making all of our sales experience readily available to the dealers by training them as completely as possible to sell our supplier's products in the one best way, which our experience has developed; or are we letting each dealer use methods of his own limited operation to sell our products in our name—or in our supplier's name—to our customers?

6. Are we continuously training all our sales personnel, from the highest to the lowest, so that they are competent to supervise dealers and all others under their authority. Have we set up our procedures so that they do constantly supervise all dealers and others in the most profitable way of marketing our products?

   Are we continuously training our own sales personnel, so that they are always ready to accept increased responsibilities and authority, whenever the opportunity for promotion offers. Do we have adequate supplies of trained personnel always available, to handle our existing and our increased business?

7. Are we stimulating and enthusing, by intelligent sales promotion means, our sales personnel and our dealers, to make them want to

sell our products most profitably, and to have them want to tell our sales story to the public most effectively? Or do we let them remain apathetic and listless, and trust that their self-created interest in our plans will be sufficient to make them enthusiastic?

8. Are we properly taking full advantage of the opportunities for public relations work, to have our sales personnel and dealers and other employees make beneficial personal social contacts with the consuming public, and produce a volume of good-will and patronage that we can achieve in no other way?

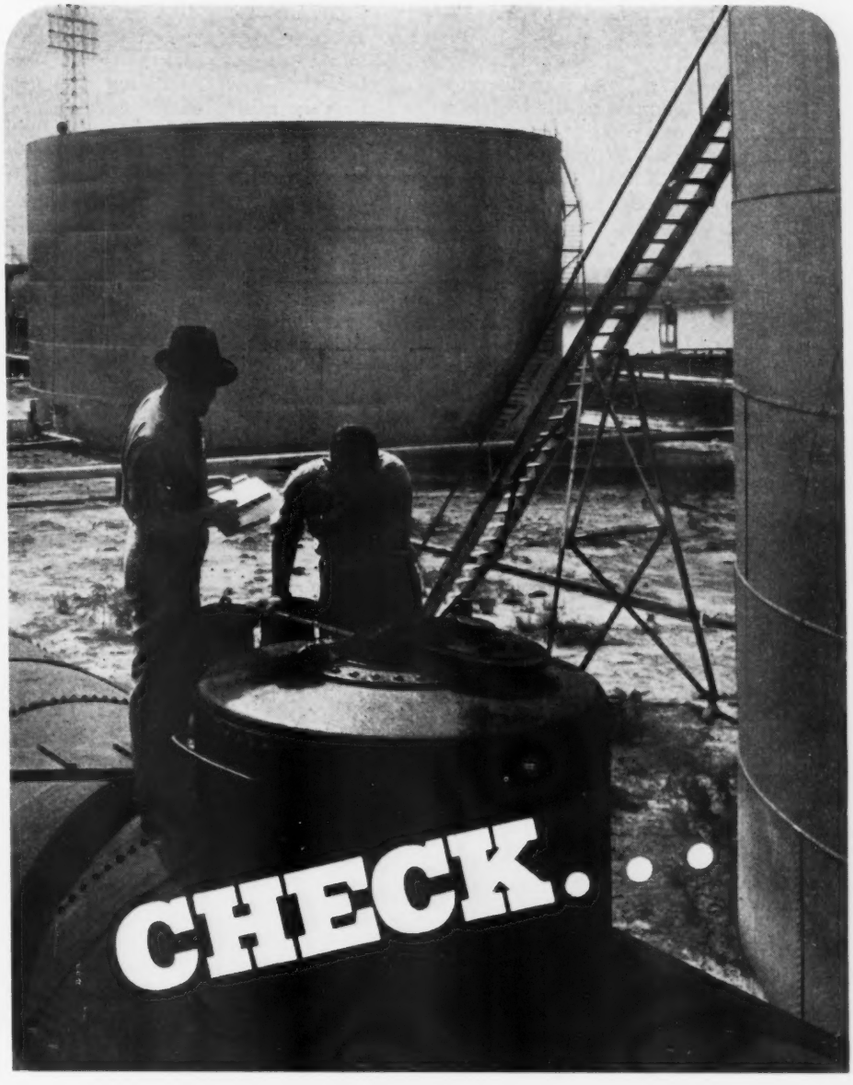
9. Are we completely co-ordinating all of our operations, so that our sales promotion, advertising, public relations, personnel training, and our other sales functions are all intimately geared together, running at the same speed to produce the one common result. Or do we have disjointed, unconnected sales efforts going out from various people in our organization to our dealers, where the burden is finally placed on the long-suffering dealer to coordinate all of this work, which should have been done by us in our own offices?

10. Are we helping our agents and dealers to make adequate profits by doing aggressive, constructive selling of a balanced line of motorists' needs, or do we employ agents and dealers primarily to conduct subversive marketing activities, for our temporary benefit, which we would not do ourselves? Do we utilize distributors and commission agents only in those poor areas of reduced profitability, where we challenge them to make profits which we admittedly could not make ourselves?

    Do we expect our dealers to operate on margins less than the amount required for us, with all our experience, ability and facilities, to do the same job, if we use good intelligence in reducing our costs and aggressive salesmanship in increasing our volume?

11. Are prices for our products reasonable? Is our price scale so set that we make a profit, and at the same time, adequately compensate our employees and our dealers as they intelligently perform their share of the distributing process?

    Are our prices reasonable to the consumer? Have we become so supersensitive to the imaginary effect of reduced price by our competitors that we glibly slash our prices, thereby nullifying the beneficial effect of economies in our



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Your commodity moves "under guard" at every General American terminal. Inspected on arrival—checked for quantity when unloaded—checked again for full measure for shipment.

We treat your commodity as though it were ours—giving full protection against waste and contamination.

And we keep our information in strict confidence. Only two people know about your product—you and General American. Join the list of world leaders who use General American Terminal Service.

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A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORPORATION

other operations, and throwing away the profits that are due to our company's investors and its employees?

12. Are we sweating and straining to save a few pennies in the expense of handling our products, and then wasting dollars in the selling of them by following policies of "More gallonage at any price?" Do we cut prices further below their already low levels to try to expropriate business in areas in which existing companies are already suffering from too much competition? Do we continue to dilute further our own dealers' business by duplicating our own outlets, and thus increase our own costs and our own losses?

13. Do we adopt unsound policies which are inimical to our own best interests, and those of the industry, in order to give us a purely temporary advantage which our competitors immediately remove from us? Or do we consider properly our obligations to our investors, our suppliers, our employees, our dealers, our customers, and the public, and by continuous intelligent and economical means do we develop procedures and practices which will co-ordinate all of our sales activities into an intelligent, unified program, to make every dollar of sales expense produce a maximum profitable return on the money, labor and effort involved?"

Those jobbers and integrated companies who have catechized themselves with these and other questions, to identify the sources of the trouble, and have ceaselessly worked to eliminate them, have laid the foundation for producing good profits, good wages, and good will, and have proved that they are really masters of their own destiny and can handle their problems satisfactorily without interference from within or without the industry.

Need for Regular Oil Change Has To Be SOLD the Motorist

NEW YORK, March 17.—Need for service stations SELLING regular change of lubricants today was stressed by R. A. Ludlow, director of the American Petroleum Institute's Committee on Lubrication, in a statement issued last week.

Some of the obstacles which the station salesman must overcome in convincing the motorist of the value in regular lubrication were given as: Belief by the motorist that modern cars, using better oils, need less attention; that oil filters will keep oil in perfect condition — always; and a misunderstanding of car-manufacturers recommendations on lubrication.

In explaining the committee's program, Mr. Ludlow elaborated on a talk given before the Ohio Petroleum Marketers Assn. convention at Columbus, O., (details of which were first published in NPN, March 6). New points made in the prepared statement, follow:

"Motor vehicles today are being operated under wider variations of temperature and of weather. The year-round car now is owned by the average person, and is utilized fully by him. And while lubricants prevent wear, some wear is inevitable. Some dust is sure to enter the crankcase of a motor vehicle engine regardless to what lengths efforts are made to keep it out. Some water is certain to be condensed in the crankcase regardless of progress in design and improvements in manufacture. Dust and dilution are natural, age-old enemies of lubrication — enemies which have yielded, but never have been conquered.

"The fact must be faced that lubricating oils are not, and never can be, pure substances. They are mixtures of many compounds, and some undesirable compounds necessarily must be present. Oil, chemically, is a hydrocarbon. Stated more simply, oil, by its very nature, contains carbon. Consequently carbon still forms in the cylinder-heads of motors, and gets into crankcases. Also, under some operating conditions, gum may form and sludges will make their appearance.

"There are other scientific facts which must be faced, and among these are difficulties encountered in lubricating a motor. Proper lubrication directly is affected by obstructions to the free flow of oil. Higher operating and driving speeds mean increased rate of wear, regardless of the quality of the lubricant or the design of the lubricating system. Because man has not yet built a perfect motor or a perfect lubricant there must continue to be such difficulties as loss of cylinder compressions, increased formation of carbon, greater consumption of gasoline, greater consumption of oil, loss of power, and, eventually, curtailed engine life.

"To a large degree these difficulties can be overcome and the disastrous results avoided if operating conditions can be subjected to scientific control. In the case of the average motor vehicle, such scientific control is impossible of attainment. Consequently, the only resultful effort which can be made, and which has a reasonable chance of succeeding, is to educate the owner of the automotive equipment to do whatever he can do—and do conveniently, easily, and cheaply—to protect and to prolong the use of the motor vehicle in which he has invested.

"In the light of present knowledge the solution of these problems lies in (a) minimizing wear by frequently removing abrasive particles from lubricating oil, and (b) keeping oil passages in the motor clean by removing sludge, gum, and carbon deposits. There is no known method of removing waste and deleterious products from the engine crankcase except regular draining.

"IT is far easier to talk about draining the crankcase than to induce the motor vehicle owner to drain it. He has been sold on the idea that better cars and better oils need less attention. He has a profound faith that the oil filter will keep the oil in perfect condition — always. His misunderstanding of car-manufacturers' recommendations has created the impression in his mind that the idea of frequent crankcase drainage is a relic of the get-out-and-get-under days of motoring. Moreover he has heard that some operators of automotive equipment seldom, if ever, drain the crankcase, and yet their equipment continues to operate. And, finally, he has not been invited, by either a consistent sales or advertising program, to drain and refill with regularity.

"The effects of consumer reluctance to change oil regularly, or even frequently, are obvious. In the first place, the average motor vehicle owner is saving less than $10 a year, although he is jeopardizing the satisfactory operation and service of automotive equipment costing many times as much. Probably he cannot see the wear, or the damage done, but nevertheless he is shortening the life of his motor.

"Results of two recent surveys indicate the risk he is running. These figures are conservative. They are taken from the actual records, and consequently are factual rather than theoretical.

"Until 1925 it was common practice for the motorist to drain and refill every 500 miles. From 1925 to the early 1930s, the majority of motorists changed crankcase oil at intervals of 500 to 1,000 miles. In 1936 the interval grew approximately every 1,547 miles. By 1938 the average was one crankcase change to every 1,772 miles.

"At the same time a similar condition exists as regards the general lubrication of the motor vehicle. Motor cars travel further and faster today and the operators have neither

the time nor the inclination to give their vehicles the personal attention that once was demanded. More and more car-owners are tending to let oil-changes and grease jobs wait, and with the modern car able to travel so far and so fast, this waiting, this extended interval between brief periods of inspection and attention, increases the jeopardy.

"Jeopardy is not a fully-descriptive term. The proper word is loss—loss through avoidable wear, loss through curtailed service, loss through eventual repairs and repair bills, and, above all, loss of business. If the American motorist could be induced to take enough interest in the safe and satisfactory operation of his car to spend only $9 a year additional, on the average, it would mean a gain in business for the service industries of roundly $101,000,000; it would mean the sale of approximately 680,000,000 quarts of oil.

"THIS is no entirely selfish proposal. Rather it is a plan to insure the American motorist of the safe and satisfactory functioning of his car. It is a plan to promote for the car-manufacturer and car-dealer an undertaking which will assure them that their customers will enjoy satisfactory use of the cars they sell. It would mean more business for them because of the more rapid turnover of and better profits from the trading-in of used cars in better condition. All that the car manufacturer or dealer is asked to do is to suggest more reasonable, and frequent, oil changes to the customers, avoid using as a selling-point the idea that "this car needs little oil," and making recommendations to customers that frequent crankcase drainings mean infrequent repairs.

"It should be unnecessary to state the benefits to the oil dealer of any effort to bring customers into his service station more frequently. The service station business is one in which one thing leads to another—a sale of gasoline to a crankcase oil change, an oil change to a complete lubrication job, a greasing job to a washing, and a washing to the installation of new or additional accessories.

"It should be reiterated that this plan is not merely a selfish effort to increase sales. It will be the purpose of the Committee on Lubrication to work with automotive manufacturers, with automotive dealers, with service station operators, and with motorists to develop, in advance, lubricants and lubrication which will keep the American car safely and satisfactorily on the road. It is an effort to develop tomorrow's lubricants for tomorrow's car—today."

Need for a liaison arrangement between the petroleum and automotive industries in the interest of greater car owner satisfaction, was illustrated by comment on servicing problems which followed the introduction of "free-wheeling" and hypoid gears.

It was declared that had the petroleum industry known in advance of these innovations, what was to be incorporated in automotive design, it would have been ready, as well as willing, to meet all lubrication needs and to provide the kind of lubrication service to which its customers are entitled, and to which they are accustomed.

Purpose of the Committee on Lubrication to take such steps, to make such plans, and to promote such efforts as will permit the customers of the two industries to be served in the best possible manner, was outlined. It will be dedicated to the proposal that effective lubrication is cheaper than repairs, that safe and satisfactory service may be had from automotive equipment which is well, frequently and properly lubricated.

Plan Animal Displays As Oil Sales Help

Lambs, puppies, kittens, maybe a cage of monkeys, on display at service stations—to help sell motor oil.

New Life is the theme of the spring sales promotion program for motor oil of Continental Oil Co. of Ponca City. It will be carried out in nine newspaper advertisements through photographs of young animals used with the copy describing the qualities of the oil.

To bring the New Life theme home to the company's stations, their operators are urged to arrange for displays of young animals. "Put a hutch of live rabbits on the island, or somewhere out of the way where it'll be in plain sight," advises the latest issue of Continental's house publication, Red Triangle. "Pen up a litter of puppies—everybody likes pups. Or some lambs. Or baby chicks.

"Or a cageful of monkeys, for that matter, if you can get 'em. You don't have to use only the animals shown in the ads . . . . in fact we recommend getting anything available . . . . the more unusual the better."

To stimulate interest in this follow-through at the stations, the Red Triangle will award 24 prizes totaling $350 to those "doing the best job of creating New Life interest at their own stations during the period of the campaign". The contest runs from March 13 to May 8. Judging will be by photographs sent in by the stations of their animal displays, and letters telling of their effectiveness. Commenting on the New Life idea in the ads, the Red Triangle says:

"Research has discovered that second only to babies in eye appeal in advertising are photographs of animals. This new campaign combines babies and animals by showing such 'baby animals' as kittens, calves, lambs, puppies and ponies . . . . the eye of the newspaper reader will be attracted by Continental's new ads faster than to any in a long while."

TRADEMARKS

The following are trademark applications pertinent to our field pending in the United States Patent Office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

HANDIGAS, Ser. No. 427,138. The Handigas Company of Ohio, Lebanon, Ohio.
Filed January 4, 1940.
For compressed natural gas sold to the trade as such for fuel and illuminating purposes.
Published February 27, 1940.

HYAMINE, Ser. No. 421,052. Rohm & Haas Company, Philadelphia, Pa.
Filed June 28, 1939.
For chemical compounds which are phenolic tertiary amines useful as corrosion inhibitors in oil systems, as fungicides and germicides in aqueous systems and as intermediates in the preparation of various other chemical compounds.
Published February 13, 1940.

ECONO GAS, Ser. No. 423,845. The Blish, Mize and Silliman Hardware Company, Atchison, Kans.
Filed Sept. 22, 1939.
For liquefied petroleum gas.
Published February 13, 1940.

HERCULES HIGH COMPRESSION GASOLINE, Ser. No. 411,681. Dryer, Clark & Dryer Oil Company, Oklahoma City, Okla.
Filed October 17, 1938.
For high compression gasoline.
Published February 13, 1940.

TUNE-O-LENE, and musical notes, Ser. No. 420,651. Hobb Swetnam Company, Wichita Falls, Texas.
Filed June 17, 1939.
For penetrating lubricating oil for use in motors, cylinders and machinery for purpose of lubrication reduction and removal of carbon, gums and the like, increasing efficiency and prolonging the life of motors and cylinders.
Published February 13, 1940.

TRICOLENE, Ser. No. 421,583. William Rosenberg, Chicago, Ill.
Filed July 14, 1939.
For lubricant in powdered form.
Published February 13, 1940.

Atlantic Refining Contracts For 5th Big Tanker

Atlantic Refining Co. has let contract for the fifth large oil tanker to be built since 1937. It will be a 19,405-ton, all-welded, turbo-electric vessel, to be built by Sun Shipbuilding and Dry Dock Co. Delivery is scheduled for the summer of 1941. Cargo capacity will be 156,000 bbls., speed 13.25 knots, overall length 544 ft., beam 70 ft.

An Atlantic tanker of the same size will be launched at the Sun yards within 90 days, to be put into service between Philadelphia and Texas Gulf ports.

Markets

Mid-Continent

TULSA, March 16.—Grade 26-70 natural gasoline prices slumped 0.25c in the Mid-Continent the past week. Sales were reported at 1.50c FOB Breckenridge and 1.75c FOB Group 3. Breckenridge prices broke first, with lower prices FOB Group 3 reported later in the week. Texas natural moving north on a Group 3 basis was said to have been responsible for the cut in Group 3 prices.

Kerosine demand perked up and many refiners reported advances in their quotations.

"Jobber requests for rush shipments of gasoline against contracts and on a market-price-date-of-shipment basis indicate their stocks are below working levels," one refiner said. Other refiners reported gasoline offerings at as much as 0.5 to 0.625c "below the low" no longer existed, now that Illinois gasoline had become a "diminishing competitive factor." No changes were reported in refiners' quotations.

A west Texas refiner reported new quotation of 5.125c for a gasoline with 78-80 octane (CFR 1939 Research test), 0.25c above his quotation for gasoline testing 70-72 octane by the L-3 method.

Pennsylvania

CLEVELAND, March 16.—Neutral oils and bright stock were offered 1c a gal. lower from western Pennsylvania the second week of March. Prices of other refined products generally were reported unchanged.

Some refiners said there were indications that domestic distributors were ready to do some spring motor oil buying, but, currently, both domestic and export trading were at a standstill, according to most reports. Quotations for 25 pour test oils ranged from 26 to 27c for 200 vis. neutral, 24 to 25c for 150 vis. neutral, and 24 to 27c for bright stock, all down 1c on the lows.

Kerosine was reported scarce throughout the field. Several lower field refiners were said to be short and in the market buying to meet their regular commitments.

Gulf

NEW YORK, March 16.—Quotations for refined products generally were reported unchanged by refiners at the Gulf the past week. Reports from refiners indicated kerosine was scarce and available for prompt shipment only in small quantities, while bunker oil was said to be more plentiful than for some time past.

At least two refiners said they could not ship a full cargo of kerosine before April, and another refiner said he was sold up until the end of April and was not quoting for May lifting. A GCRA refiner reported being offered 4.625c for a cargo of 41-43 w.w. for April lifting but said he had been unable to take on the business. Quotations reported for GCRA specification kerosine were at 4.625c and for non-GCRA, 41-43 w.w., quotations ranged from 4.50 to 4.75c.

A Philadelphia buyer said he had been offered cargoes of Bunker "C" fuel at New Orleans and Corpus Christi at $0.85 a bbl. Refiners' quotations for "C" fuel, ships' bunkers and cargo lots, ranged from $0.90 to $1.05.

Reports indicated inquiries for gasoline were numerous throughout the week. One refiner reported receiving inquiry for 100,000 tons of 68 octane, 64-66, 375 end point gasoline for export shipment over the next 4 months. Another refiner said he had received as "many inquiries for gasoline as were received during the first week of the war." He estimated these inquiries totaled 1,000,000 bbls. for export. No open spot sales were reported.

A seller with storage at the Gulf said he had been offering for some time "500,000 bbls. of 70 octane unleaded gasoline at 5.25c and 500,000 bbls. of 72-74 octane leaded at 5c, with no takers." Gulf refiners' quotations ranged from 5.875 to 6.25c for 70 octane unleaded, and 5.25 to 6.25c for 72-74 octane leaded.

California

LOS ANGELES, Mar. 16.—Although buyers were said to be active with inquiries on the Pacific Coast the past week, no business was reported placed. In many instances, suppliers were said to be unwilling to meet the high specifications called for at the low prices offered. One marketing company was said to have refused to accept $1.10 per bbl. for a cargo of kerosine distillate, because of the rigid specifications.

N.P.N. Gasoline Index

	Dealer T.w. Cents per	Tank Car Gal.
March 18	9.61	5.86
Month ago	9.64	5.94
Year ago	9.35	5.44

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of 9 wholesale markets for regular-grade gasoline.

In another instance, $1.20 per case was said to have been offered unsuccessfully for a cargo of kerosine for which the asked price was $1.25 per case.

There were persistent reports of under canopy cutting of retail prices on regular and premium gasolines in the Los Angeles metropolitan area. Leaded gasoline was reported available at small independent plants in the Basin at 7c per gal.

A decrease in the output of high grade crude in the Montebello field, due to enforcement of the state law prohibiting gas wastage, was said to have resulted in a shortage of supplies for some independent refineries in that area and a consequent decrease in the quantity of third grade gasoline offered in the Basin.

Atlantic Coast

NEW YORK, March 16.—Gasoline prices were down 0.25c to 0.5c at a number of Atlantic seaboard points in the week ended March 16. There were widespread reports of still lower prices as the week ended.

Quotations reported by New York suppliers for 72-74 octane ranged from 6.25 to 7.50c in tank cars, and 6.15 to 7.20c in barges. A New York buyer said he had experienced no trouble in buying "better than 72 octane gasoline in barges at under 5.875c" and unconfirmed reports were heard that "jobbers in Brooklyn are picking up 68-70 octane in trucks from a barge operator at 6c." Barge quotations of New York suppliers for 68-70 octane ranged from 6.15 to 6.50c, and tank car quotations, 6.25c to 6.75c.

A Philadelphia barge terminal operator said he would "sell any quantity, up to 1,000,000 gals., of guaranteed minimum 72 octane at 6.25c," and another Philadelphia barge terminal operator said he would "take on any amount of business for better than 72 octane at 6.25c." Quotations reported by refiners and tanker terminal operators for 72-74 octane ranged from 6.50 to 7.75c. "We're getting all the business we want at 6.50c," one supplier said.

Prices for other products generally were reported unchanged. A New York supplier reported buying 15,000 bbls. of kerosine at 6c. Quotations reported by New York suppliers ranged from 5.60 to 6.50c in tank cars and 5.50 to 6.50c in barges.

Mid-Western

CHICAGO, March 16. — Price advances of 0.125 cent for kerosine were reported by some refiners and tank car marketers in Chicago as contract instructions for jobbers' spring requirements increased. Demand for range oil and other light fuel oils also was

(*Continued on page* 52)

REFINERY and SEABOARD PRICES

In bulk lots by Motor Transport, Tank Car, Barge or Tanker as shown

HOW PRICES ARE REPORTED—

Refinery and Seaboard prices in National Petroleum News are gathered by PLATT'S OILGRAM and are as published in the Monday issue of the OILGRAM.

PLATT'S OILGRAM is a reporting service issued in three identical editions daily from News Bureaus at New York, Cleveland, and Tulsa, Okla. PLATT'S OILGRAM gathers and publishes what its publisher and representatives believe to be accurate news of sales, prices and current happenings affecting the oil industry and that will be of interest to its subscribers. As this information is usually private, OILGRAM reports it according to what it is able to obtain from sources deemed reliable.

All information is supplied without guarantee as to its completeness, accuracy, time of transmission or promptness of delivery.

The subscriber receives this information for his private use and not for resale or further distribution.

Publisher reserves the right to change the extent, nature and form of showing this information at any time.

Prices shown in the tables are quotations (meaning sellers' general offers or posted prices), or actual sales prices, reported to OILGRAM by refiners for "open spot" transactions, except as otherwise specified.

Prices arrived at by discounts off a specified price or "market date of shipment," prices named in contracts or prices arrived at in accordance with any arrangement made prior to date of sale, are not for "open spot" transactions and therefore are not considered in making the price tables. Prices made to brokers and prices in "inter-refinery" transactions are also not considered except as may be noted.

All prices are for "immediate" shipment except in Gulf Coast bulk transactions where shipment is generally to be made in ninety days. Prices are FOB refineries, pipelines, or tanker terminals in districts designated.

Prices shown are for quantities in bulk such as tank car lots, motor transport lots or barge lots; and in cents per gallon; heavy fuel oils are in dollars per barrel of 42 U.S. gallons; wax and petrolatums are in cents per pound. Prices applying to barges or cargoes only are so designated.

Prices do not include taxes or inspection fees. Prices are published at the close of the business day.

Mid-Western prices in the tables were gathered from refiners with offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Other refinery prices are given by and for the particular refining district where the material is made and from which it is shipped.

When prices obtained by OILGRAM do not conform to these conditions the exception and the new conditions are noted in the news lead or in conjunction with the price table by footnote or otherwise, for the particular refinery or sales district involved.

Crude oil and products covered by OILGRAM'S news and price service, except where noted, have been represented to the publisher as fully up to the customary trade specifications indicated and according to the generally accepted methods of test; and all crude oil and all products thereof as having been lawfully produced and transported.

Any apparent error should be reported to the nearest OILGRAM or National Petroleum News office at once as no correction will be made after the second issue of the OILGRAM or National Petroleum News following its publication.

Summary of Daily Gasoline Prices (March 11 to March 18)

U. S. Motor, (Oct. L-3) 62 octane and below:	Latest Prices Mon. Mar. 18	March 11	March 12	March 13	March 14	March 15
Oklahoma	3.75 – 4.125	3.75 – 4.125	3.75 – 4.125	3.75 – 4.125	3.75 – 4.125	3.75 – 4.125
N. Tex. (For shpt. to Tex. & N. M. Dest'ns.)	3.875– 4.25	3.875– 4.25	3.875– 4.00	3.875– 4.00	3.875– 4.00	3.875– 4.00
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	(b) 4.00 –4.25	(b) 4.00 –4.25	(b) 4.00 –4.25	(b) 4.00 –4.25	(b) 4.00 – 4.25	(b) 4.00 –4.25
Mid-Western (Group 3 basis)	3.75 – 4.125	3.75 – 4.125	3.75 – 4.125	3.75 – 4.125	3.75 – 4.125	3.75 – 4.125
63-66 octane:						
Oklahoma	4.00 –4.4375	4.00 –4.4375	4.00 –4.4375	4.00 –4.4375	4.00 –4.4375	4.00 –4.4375
N. Tex. (For shpt. to Tex. & N. M. Dest'ns.)	4.125– 4.25	4.125– 4.25	4.125– 4.25	4.125– 4.25	4.125– 4.25	4.125– 4.25
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	(a) 4.50 –4.625	(a) 4.50 –4.625	(a) 4.50 –4.625	(a) 4.50 –4.625	(a) 4.50 –4.625	(a) 4.50 –4.625
Mid-Western (Group 3 basis)	(b) 4.00	(b) 4.00	(b) 4.00	(b) 4.00	(b) 4.00	(b) 4.00
67-69 octane:						
Oklahoma	4.25 – 4.75	4.00 – 4.75	4.00 – 4.75	4.00 – 4.75	4.00 – 4.75	4.00 – 4.75
N. Tex. (For shpt. to Tex. & N. M. Dest'ns.)	4.375– 4.50	4.375– 4.50	4.375– 4.50	4.375– 4.50	4.375– 4.50	4.375– 4.50
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	(b) 4.50 –4.75	(b) 4.50 –4.75	(b) 4.50 –4.75	(b) 4.50 –4.75	(b) 4.50 – 4.75	(b) 4.50 –4.75
Mid-Western (Group 3 basis)	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75
70-72 octane:						
Oklahoma	4.50 – 5.00	4.25 – 5.00	4.25 – 5.00	4.25 – 5.00	4.25 – 5.00	4.25 – 5.00
N. Tex. (For shpt. to Tex. & N. M. Dest'ns.)	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	(b) 4.875–5.00	(b) 4.875–5.00	(b) 4.875–5.00	(b) 4.875–5.00	(b) 4.875–5.00	(b) 4.875–5.00
East Texas	(b) 4.75	(a) 4.75	(a) 4.75	(a) 4.75	(a) 4.75	(a) 4.75
Mid-Western (Group 3 basis)	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
(l) **Motor Gasoline, 72-74 octane:**						
New York harbor	6.50 – 7.70	6.50 – 7.70	6.50 – 7.70	6.50 – 7.70	6.25 – 7.50	6.25 – 7.50
Philadelphia district	6.50 – 7.75	6.50 – 7.75	6.50 – 7.75	6.50 – 7.75	6.50 – 7.75	6.50 – 7.75
Baltimore district	6.50 – 7.75	6.50 – 7.75	6.50 – 7.75	6.50 – 7.75	6.50 – 7.75	6.50 – 7.75
Motor Gasoline:						
65 octane (CFR Motor method)						
Bradford-Warren (Western Penna.)	(a) 5.75	(a) 5.75	(a) 5.75	(a) 5.75	(a) 5.75	(a) 5.75
66-68 octane (L-3)						
Bradford-Warren (Western Penna.)	(a) 5.75	(a) 5.75	(a) 5.75	(a) 5.75	(a) 5.75	(a) 5.75
Other Districts	(a) 6.00	(a) 6.00	(a) 6.00	(a) 6.00	(a) 6.00	(a) 6.00
"Q" Gasoline:						
Bradford-Warren (Western Penna.)	(b) 5.75	5.75 – 6.25	5.75 – 6.25	5.75 – 6.25	5.75 – 6.25	(b) 5.75
Other Districts (Western Penna.)	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75
75-76 Octane: (L-3)						
Bradford-Warren (Western Penna.)	(b) 6.00 –6.25	(b) 6.00 –6.25	(b) 6.00 –6.25	(b) 6.00 –6.25	(b) 6.00 –6.25	(b) 6.00 –6.25
Other Districts (Western Penna.)	(a) 6.25	(a) 6.25	(a) 6.25	(a) 6.25	(a) 6.25	(a) 6.25

REFINERY PRICES

Gasoline

U. S. Motor (Oct. L-3) except where otherwise specifed

Prices Effective	Mar. 18	Mar. 11
OKLAHOMA		
62 oct. & below	3.75 – 4.125	3.75 – 4.125
63-66 oct.	4.00 –4.4375	4.00 –4.4375
67-69 oct.	4.25 – 4.75	4.00 – 4.75
70-72 oct.	4.50 – 5.00	4.25 – 5.00
60-62 400 e.p.	(b) 3.875–4.00	(b) 3.875–4.00
MID-WESTERN		
62 oct. & below	3.75 – 4.125	3.75 – 4.125
63-66 oct.	(b) 4.00	(b) 4.00
67-69 oct.	4.25 – 4.75	4.25 – 4.75
70-72 oct.	4.50 – 5.00	4.50 – 5.00
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
62 oct. & below	3.875– 4.00	3.875– 4.00
63-66 oct.	4.125– 4.25	4.125– 4.25
67-69 oct.	4.375– 4.50	4.375– 4.50
70-72 oct.	4.625– 4.75	4.625– 4.75
60-62, 400 e.p.	(b) 3.875–4.00	(b) 3.875–4.00
W. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
62 oct. & below	(b) 4.00 –4.25	(b) 4.00 –4.25
63-66 oct.	(a) 4.50 –4.625	(a) 4.50 –4.625
67-69 oct.	(b) 4.50 –4.75	(b) 4.50 –4.75
70-72 oct.	(b) 4.875–5.00	(b) 4.875–5.00

Prices Effective	Mar. 18	Mar. 11
CENT. W. TEX. (Prices to truck transports)		
62 oct. & below	(a) 4.00	(a) 4.00
63-66 octane	(a) 4.625	(a) 4.625
66-70 octane	(e)	(e)
E. TEX.		
70-72 oct.	(a) 4.75	(a) 4.75
60-62, 400 e.p.	(a) 4.25	(a) 4.25
KANSAS (For Kansas destinations only)		
62 oct. & below	(a) 4.375	(a) 4.375
67-69 oct.	(a) 4.625	(a) 4.625
70-72 oct.	(a) 5.125	(a) 5.125
N. LA. (For shipment to La. & Ark.)		
62 oct. & below	(a) 4.125–4.375	(a) 4.125–4.375
63-66 oct.	(a) 4.375–4.625	(a) 4.375–4.625
70-72 oct. leaded	(a) 4.875–5.125	(a) 4.875–5.125
ARK. (FOB Ark. plant of one refiner, for shipment to Ark. & La.)		
62 oct. & below	4.00	4.00
67-69 oct.	4.50	4.50
70-72 oct.	5.00	5.00

Prices Effective	Mar. 18	Mar. 11
WESTERN PENNA. (Motor gasoline.)		
Bradford-Warren:		
U.S. Motor (58-62°)	(b) 5.00	(b) 5.00
65 oct. (CFR Motor Method)	(a) 5.75	(a) 5.75
66-68 oct. (L-3)	(a) 5.75	(a) 5.75
"Q" gasoline	(b) 5.75	5.75 – 6.25
75-76 oct. (L-3)	(b) 6.00 –6.25	(b) 6.00 –6.25
Other districts:		
U.S. Motor (58-62°)	(b) 4.50	(a) 4.50
66-68 oct. (L-3)	(a) 6.00	(a) 6.00
"Q" gasoline	5.50 – 5.75	5.50 – 5.75
75-76 oct. (L-3)	(a) 6.25	(a) 6.25
CENTRAL MICHIGAN (f)		
Str.-Run Gasoline	4.00 – 4.50	(g) 4.00 – 4.375
U.S. Motor: (Oct. L-3)		
67-69 oct.	5.50 – 6.25	5.50 – 6.25
72-74 oct.	6.25 – 7.00	6.25 – 7.00
OHIO (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances)		
70-72 oct. (ASTM M.M.)	7.00	7.00
CALIFORNIA U.S. Motor:		
54-58 grav., for instate shipment	6.00 – 9.25	6.00 – 9.25
54-58 grav., for outside state shipment	6.25 – 9.00	6.25 – 9.00
58-61 grav., 375-400 e.p., 65 oct. & above	7.25 – 9.75	7.25 – 9.75

(a) One refiner quoting. (b) Two refiners quoting. (c) One supplier quoting. (d) Two suppliers quoting. (e) No quotations reported. (f) Prices FOB Central Michigan refinery group basis for shipment within Michigan; shipments may originate at plants outside Central group. (g) Excluding Detroit shipment. (h) For shipment to Ark. points only. (i) Quotations. (j) Sale. (k) Sales.

REFINERY PRICES (Continued)

(Prices on this page are explained in note at top of Page 47)

Kerosine, Gas & Fuel Oils

Prices Effective	Mar. 18	Mar. 11
OKLAHOMA		
41-43 grav. w.w.	3.75 – 4.25	3.75 – 4.25
42-44 grav., w.w.	4.00 – 4.625	3.875– 4.625
Range Oil	3.625– 3.875	3.625– 3.875
No. 1 P.W.	3.625–3.8125	3.625–3.8125
No. 1 straw	(b) 3.375–3.75	(b) 3.375–3.75
No. 2 straw	3.25 – 3.625	3.25 – 3.625
No. 2 dark	(a)3.375	(a)3.375
U.G.I. gas oil	(b)3.25	(b)3.25
No. 3 fuel	3.25 –3.4375	3.25 –3.4375
No. 5 fuel		
No. 6 fuel	(a)$0.50	(a)$0.50
14-16 fuel	(a)$0.85	(a)$0.85
MID-WESTERN		
41-43 grav. w.w.	3.875– 4.25	3.75 – 4.25
42-44 grav. w.w.	4.00 – 4.625	3.875– 4.625
Range oil	(b) 3.75 –4.00	(b) 3.75 –4.00
No. 1 p.w.	3.625– 3.875	3.625– 3.875
No. 1 straw	3.50 – 3.625	3.50 – 3.625
No. 2 straw	3.375– 3.50	3.375– 3.50
No. 3	3.25 – 3.375	3.25 – 3.375
No. 5	(a $0.70	(a $0.70
No. 6	(b) $0.50–$0.55	(b) $0.50–$0.55
N. TEX. (For shpt. to Tex. & N.M. dest'ns.)		
41-43 grav. w.w.	(b) 3.875–4.00	(b) 3.875–4.00
No. 1 P.W.	(a) 3.875	(a) 3.875
E. TEX.		
41-43 grav. w.w.	(a) 3.50 –3.75	(a) 3.50 – 3.75
No. 1 p.w.		
KANSAS (For Kansas destinations only)		
41-43 gravity w.w.	(a)4.25	(a)4.25
42-44 gravity w.w.	(a)4.375	(a)4.375
No. 1 p.w.	(a)4.00	(a)4.00
No. 6 fuel	(b)$0.60	(b)$0.60
N. LA. (For shipment to La. and Ark.)		
41-43 grav. w.w.	(a) 3.875–4.00	(a) 3.875–4.00
10-14 gravity	(a) $0.65–$0.70	(a) $0.65–$0.70
ARK. (F.o.b. Ark. plant of one refiner for shipment to Ark. and La.)		
41-43 grav. w.w.	4.25	4.00
No. 1	3.875	3.875
No. 2	3.625	3.625
28-32 zero fuel	3.50	3.50
Tractor Fuel	(h 4.25	(h)4.25
WESTERN PENNA.		
Bradford-Warren:		
45 grav. w.w.	5.125– 5.25	5.125
46 grav. w.w.	(a)5.375	(a)5.375
36-40 gravity	(a)4.75	(a)4.75
Other districts:		
45 grav. w.w.	4.875– 5.00	4.875– 5.00
46 grav. w.w.	5.00 – 5.125	5.00 – 5.125
47 grav. w.w.	5.00 – 5.25	5.00 – 5.25
36-40 gravity	(l 3.875 4.50	(l 3.875 4.50
CENTRAL MICHIGAN (f)		
47-49 gravity w.w.	4.80 – 5.00	4.80 – 5.00
P.W. Distillate	4.50 – 4.75	4.50 – 4.75
No. 3 gas oil, Str.	4.00 – 4.50	4.00 – 4.50
U.G.I. gas oil	3.00 – 3.75	3.00 – 3.75
Fuel Oils (Vis. at 100):		
500-700 Vis.	(b) 2.25 – 3.25	(b) 2.25 – 3.25
300-500 Vis.	(b) 2.50 –3.50	(b) 2.50 –3.50
100-300 Vis.	(a) 3.50 – 3.75	(a) 3.50 – 3.75
CALIFORNIA		
40-43 grav. w.w.	4.50 – 6.00	
San Joaquin Valley:		
Heavy fuel	$0.55 – $0.75	$0.55 – $0.75
Light fuel	$0.75 – $0.85	$0.75 – $0.85
Diesel fuel	2.75 – 4.00	2.75 – 4.00
Stove dist.	3.00 – 5.00	3.00 – 5.00
Los Angeles:		
Heavy fuel	$0.40 – $0.65	$0.40 – $0.65
Light fuel	$0.50 – $0.75	$0.50 – $0.75
Diesel fuel	2.25 – 4.00	2.25 – 4.00
Stove dist.	2.25 – 4.00	2.25 – 4.00
San Francisco:		
Heavy fuel	$0.80	$0.80
Light fuel	$0.90	$0.90
Diesel fuel	4.50	4.50
Stove dist.	4.50	5.50

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Lubricating Oils

Prices Effective	Mar. 18	Mar. 11
WESTERN PENNA.		
Viscous Neutrals — No. 3 col. Vis. at 70° F.		
200 Vis. (180 at 100°) 420-425 fl.		
0 p.t.	(a)29.50	(a)30.50
10 p.t.	(a)28.50	(a)29.50
15 p.t.	(a)27.50	(a)28.50
25 p.t.	26.00 –27.00	27.00
150 Vis. (143 at 100) 400-405 fl.		
0 p.t.	(a)27.50	(a)28.50
10 p.t.	(a)26.50	(a)27.50
15 p.t.	(a)25.50	(a)26.50
25 p.t.	24.00 –25.00	25.00
Cylinder Stocks		
Brt. stk., 145-155 vis. at 210°, 540-550 fl., No. 8 col.		
10 p.t.	(a)26.50	(a)27.50
15 p.t.	(a 25.50	(a)26.50
25 p.t.	24.00 –26.00	25.00 –27.00
600 S.R. filterable	14.00	14.00 –14.50
650 S.R.	16.00	16.00
600 fl	17.00	17.00 –18.00
630 fl	20.00	20.00
MID-CONTINENT (F.o.b. Tulsa)		
Neutral Oils (Vis. at 100° F. 0 to 10 P.P.)		
Pale Oils:		
Vis. Color		
60-85—No. 2	5.75 – 7.50	6.25 – 7.50
86-110—No. 2	6.00 – 8.00	6.50 – 8.00
150—No. 3	10.50 –13.75	10.50 –13.75
180—No. 3	11.50 –14.00	12.00 –14.00
200—No. 3	12.00 –14.50	12.50 –14.50
250—No. 3	13.00 –15.50	13.50 –15.50
280—No. 3	15.50 –17.25	15.50 –17.25
300—No. 3	16.50 –17.75	16.50 –17.75
Red Oils:		
180—No. 5	(a)11.50	(a)11.50
200—No. 5	11.50 –13.00	12.00 –13.00
280—No. 5	14.75 –15.00	14.75 –15.00
300—No. 5	(b) 13.50–15.75	(b) 14.00–15.75

Note: Viscous Neutrals, 15-25 p.p. generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils.

Bright Stocks:

200 Vis. at D. 210°	(a)28.00	(a)28.00
150-160 Vis. at 210° D:		
0 to 10 p.p.	21.00 –25.00	23.00 –25.00
10 to 25 p.p.	20.00 –24.50	22.00 –24.50
25 to 40 p.p.	(b) 23.00–24.00	(b) 23.00–24.00
150-160 vis. at 210° E.	19.00 –21.00	21.00 –24.00
120 Vis. at 210° D:		
0 to 10 p.p.	20.00 –23.375	22.00 –23.375
25 to 40 p.p.	(a 22.50	(a 22.50
600 S.R. Dark Green	(a 8.00	(a 8.00
600 S.R. Olive Green	9.00 – 9.50	9.00 – 9.50
631 S.R.	(a 20.00	(a 20.00
Black Oil	(b) 4.00 – 5.50	(b) 4.00 –5.50

SOUTH TEXAS Neutral Oils

Vis. Color		
Pale Oils: (*Vis. at 100°F*)		
100 No. 1½-2½	5.75 – 6.00	5.75 – 6.00
200 No. 2-3	7.50 – 7.75	7.50 – 7.75
300 No. 2-3	8.00 – 8.25	8.00 – 8.25
500 No. 2½-3½	9.00 – 9.25	9.00 – 9.25
750 No. 3-4	9.50 – 9.75	9.50 – 9.75
1200 No. 3-4	9.875–10.50	9.875–10.50
2000 No. 4	10.00 –10.75	10.00 –10.75
Red Oils:		
200 No. 5-6	7.50 – 7.75	7.50 – 7.75
300 No. 5-6	8.00 – 8.25	8.00 – 8.25
500 No. 5-6	9.00 – 9.25	9.00 – 9.25
750 No. 5-6	9.50 – 9.75	9.50 – 9.75
1200 No. 5-6	9.875–10.50	9.875–10.50
2000 No. 5-6	10.00 –10.75	10.00 –10.75

Lubricating Oils (Cont'd.)

Prices Effective	Mar. 18	Mar. 11
CHICAGO		
Neutral Oils (Vis. at 100° F. 0 to 10 p.p.		
Pale Oils		
Vis. Color		
60-85—No. 2	7.75	8.00
86-110—No. 2	8.00	8.25
150—No. 3	11.25	11.75
180—No. 3	12.50	13.00
200—No. 3	13.00	13.50
250—No. 3	14.00	14.50
Red Oils:		
180—No. 5	12.00	12.50
200—No. 5	12.50	13.00
250—No. 5	13.00	13.50
280—No. 5	13.50	14.00
300—No. 5	14.00	15.00

Note: Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., 0.25c lower.

Unfiltered Steam Refined: (Viscosity at 210°)

140	9.50	10.00
160	10.50	11.00
200	11.50	12.00

Bright stocks, 160 vis. at 210, No. 8 color:

0 to 10 p.p.	21.75	23.75
15 to 25 p.p.	20.75	22.75
30 to 40 p.p.	20.25	22.25
E filtered Cyl. Stock	14.00	14.50

Note: To obtain prices delivered in Chicago, add 0.25c per gal.

Natural Gasoline

(Group 3 & Breckenridge prices are to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

FOB GROUP 3		
Grade 26-70	(k 1.75	(k)2.00
FOB BRECKENRIDGE		
Grade 26-70	(i)1.50	(i)1.75
CALIFORNIA (FOB plants in Los Angeles basin)		
75-85, 350-375 e.p. for blending	6.00 – 6.25	6.00 – 6.25

Naphtha and Solvent

(FOB Group 3 as quoted by Chicago sellers)

Stoddard solvent	6.375	6.375
Cleaners' naphtha	6.875	6.875
V. M. & P. naphtha	6.875	6.875
Mineral spirits	5.875	5.875
Rubber solvent	6.875	6.875
Lacquer diluent	7.875	7.875
Benzol Diluent	8.375	

Wax

White Crude Scale:

WESTERN PENNA. (Bbls., C.L., N. Y.)		
122-124 A.m.p.	(b) 5.25 –5.50	(b) 5.25 –5.50
124-126 A.m.p.	5.25 – 5.50	5.25 – 5.50
OKLAHOMA (Bbls. or burlap bags, C.L.)		
124-126 A.m.p.	(b) 5.50 – 5.75	(b) 5.50 – 5.75

CHICAGO (FOB Chicago district refinery of one refiner, in bags or slabs loose, carloads. Melting points are EMP (ASTM) methods; add 3° F. to convert into AMP.)

Fully refined:		
122-124 (bags only)	6.10	6.10
125-127	6.10	6.10
127-129	6.35	6.35
130-132	6.65	6.65
132-134	6.90	6.90
135-137	7.65	7.65

Petrolatums

WESTERN PENNA. (Bbls., carloads; tank cars, 0.5c per lb. less.)			
Snow White	6.875– 7.00	6.875– 7.00
Lily White	5.875– 6.00	5.875– 6.00
Cream White	4.875– 5.00	4.875– 5.00
Light Amber	3.625– 3.75	3.50 – 3.625
Amber	3.375– 3.625	3.25 – 3.375
Red	3.125– 3.375	3.00 – 3.375

(a) One refiner quoting. (b) Two refiners quoting. (c) One supplier quoting. (d) Two suppliers quoting. (e) No quotations reported. (f) Prices FOB Central Michigan refinery group basis for shipment within Michigan; shipments may originate at plants outside Central group. (g) Excluding Detroit shipment. (h) For shipment to Ark. points only. (i) Quotations. (j) Sale. (k) Sales. (l) Pittsburgh district prices excluded.

SEABOARD PRICES EXPORT AND COASTWISE

(Prices on this page are explained in note at top of Page 47)

Atlantic Coast (FOB Refineries & Tanker Terminals)

Prices Effective Mar. 18

MOTOR GASOLINE

District:	60-64 Oct.	65-66 Oct.	68-70 Oct.	72-74 Oct.	KEROSINE and or NO. 1 FUEL
N. Y. Harb.	6.25 – 6.70	6.25 – 7.30	6.25 – 6.75	6.25 – 7.50	5.60 – 6.50
N. Y. Harb., barges	6.25 – 6.70	6.00 – 7.05	6.00 – 6.50	6.00 – 7.20	5.50 – 6.50
Albany	.....	.....	.....	7.10 – 7.80	(c)5.70
Philadelphia	6.25 – 6.75	(d) 6.25 –6.75	6.25 – 6.75	6.25 – 7.75	6.00 – 6.25
Baltimore	6.25 – 6.75	(d) 6.25 –6.75	6.25 – 7.00	6.25 – 7.75	(d)6.00
Norfolk	(d) 6.50 –6.75	(c)6.75	6.75 – 7.00	7.00 – 7.75	(d)5.50 –6.00
Wilm'ton	6.25 – 6.75	(c)6.75	6.50 – 7.00	7.00 – 7.85	5.50 – 6.00
Char'ston	6.50 – 6.75	(c)6.75	(d)7.00	7.00 – 7.55	(d)5.50 –6.00
Savannah	6.25 – 6.75	.....	6.50 – 7.00	7.00 – 7.25	5.50 – 5.625
Jacksonville	6.25 – 6.75	.....	6.50 – 7.00	7.00 – 7.25	5.50 – 5.625
Miami	(d) 6.25 –6.75	.....	(c)7.00	(d)7.00 –7.25	(c) 5.50 –5.625
Tampa	6.25 – 6.75	.....	(c)7.00	7.00 – 7.25	5.50 – 5.625
Pensacola	(c) 6.50 –6.75	.....	.....	(c) 7.00 – 7.25	(c) 5.50 –5.625
Mobile	6.00 – 6.50	.....	(c)6.25	6.75 – 7.00	(c) 5.50 –5.625
Portland	.....	.....	(c)7.50	7.10	(d)5.90
Boston	6.50 – 7.25	(d) 6.75 –7.25	6.75 – 7.25	6.75 – 7.50	5.70 – 6.10
Providence	6.80 – 7.25	(c)7.25	(d) 6.75 –7.25	6.75 – 7.50	5.70 – 6.10

FUEL OILS

	Nos. 2-3	No. 4	No. 5	No. 6
N. Y. Harb.	5.10 – 5.60	5.10 – 6.00	$1.70 –$1.85	$1.50
N. Y. Harb., barges	5.00 – 5.50	5.00 – 6.00	.....	.....
Albany	(c)5.20	(c)5.20	(c)$2.00	(c)$1.70
Philadelphia	4.75 – 5.60	4.50 – 5.35	$1.46 –$1.70	$1.25 –$1.50
Baltimore	(d) 4.75 –5.00	(c)4.50	(c)$1.47	$1.25 –$1.50
Norfolk	(c)5.25	.....	.....	(c)$1.50
Charleston	(c)5.50	.....	.....	.....
Savannah	.....	.....	.....	(c)$1.45
Jacksonville	.....	.....	.....	(c)$1.45
Tampa	.....	.....	.....	(c)$1.40
Portland	(d)5.10	(c)5.10	(c)$2.10	(d)$1.60
Boston	5.20 – 5.70	(d) 5.20 –5.70	(d)$1.80	(c)$1.50
Providence	5.20 – 5.70	(d) 5.20 –5.70	$1.75 –$1.80	(c)$1.50

	Bunker C Fuel Ships' bunkers	Diesel Oil Ships' bunkers	Diesel Oil Shore Plants	Gas House 28-34	Gas Oil Gravity
N. Y. harbor	$1.50	$2.10 –$2.35	5.10	5.20	
Albany	(c $1.70	.....	5.20	.....	
Philadelphia	$1.25 –$1.50	$2.10 –$2.35	5.00	.....	
Baltimore	(d)$1.50	$2.10	.....	.....	
Norfolk	(d)$1.50	$2.10 –$2.35	.....	.....	
Charleston	(c $1.45	$1.90 –$2.31	.....	.....	
Savannah	(d)$1.45	$1.995–$2.10	.....	.....	
Jacksonville	(d)$1.45	$1.995–$2.10	5.00	.....	
Tampa	(d)$1.40	$1.995–$2.10	5.00	.....	
Portland	(d)$1.50	$2.20	5.40	5.50	
Boston	(d)$1.50	$2.10 –$2.35	5.20	5.30	
Providence	(d)$1.50	$2.10 –$2.35	5.20	5.30	

New York Export Lubes

(Penna. Products in bbls. FAS New York)

Prices Effective	Mar. 18	Mar. 11
Bright stock:		
Light, 25 p.t.	(b) 32.50–34.00	(b) 34.00–36.00
Neutral oil:		
200 3 color, 25 p.t.	(a)36.00	(a)36.00
150 3 color, 25 p.t.	(b) 34.00–36.00	(b) 34.00–36.00
600 s.r., unfilt	(b) 22.50–23.00	(b) 22.50–23.00
650 s.r., unfilt	(b) 24.00–25.00	(b) 24.00–26.00
600 fl., s.r.	(b) 25.50–26.00	(b) 25.50–27.00
630 fl., s.r.	(b) 29.00–31.00	(b) 31.00–32.00

Wax

(A.S.T.M. Tests. Melting points, however, are A.M.P., 3° higher than E.M.P. Export prices, FAS. c.l. Domestic prices, FOB. refr'ies., in bags, c.l., with 0.2c discount allowed for shipment in bulk, except where noted. Scale solid; fully refined slabs in bags)

Prices Effective Mar. 18

	New Orleans Export	N. Y. Domestic	N. Y. Export
Crude Scale:			
124-6 Yellow	(a)5.25	.....	(a)5.25
122-4 White	.....	(b) 5.25–5.50	(b) 5.25–5.50
124-6 White	(b) 5.25–5.75	5.25–5.50	5.25–5.50
Fully Refined:			
123-5	.....	(a)6.25	(a)7.125
125-7	(a)7.25	(a)6.30	(b)7.25
128-30	(a)7.50	(b&i) 6.10-6.40	(b)7.50
130-2	(a)7.75	(a&i) 6.60	(b)7.75
133-5	(a)8.25	(b&i) 6.65-6.85	(a)8.25
135-7	(a)8.75	.....	(a)8.75
108-11 White Match	.....	.....	(a&j)5.75

Naphtha

Prices Effective Mar. 18	V.M.&P. Naphtha	Mineral Spirits
Baltimore	9.50	8.0–8.5
New York Harbor	9.0–9.5	8.5–9.0
Philadelphia district	10	8.25–9
Boston	9.5	9.5
Providence	9.5	9.5
†Ohio points, delivered	8.75	*8.25

*This is on rubber solvent.

†Ohio prices are those of S. O. Ohio. Its prices for D.C. naphtha, special Varnolene, Varnolene and Sohio Solvent are same as for V.M.&P.

Pacific Export

(c) (Quotations at seaboard, Los Angeles, cargo lots, except where otherwise noted.)

Prices Effective	Mar. 18	Mar. 11
U. S. Motor, under 65 octane	5.75 – 6.00	5.75 – 6.00
400 e.p. blend, 65 oct. min.	6.00 – 6.25	6.00 – 6.25
390 e.p. blend, 66 oct.	6.125–6.375	6.125–6.375
390 e.p. blend, 68 oct.	6.25 – 6.50	6.25 – 6.50
375 e.p. blend, 70 oct.	6.375–6.75	6.375–6.75
(d) 38-40 gravity, w.w. kerosine	4.25 – 5.00	4.25 – 5.00
41-43 grav., w.w. kero.	4.50 – 5.00	4.50 – 5.00
44 grav., w.w. kero	5.00 – 5.50	5.00 – 5.50
Diesel fuel, 24 & above	$1.25 –$1.35	$1.25 –$1.35
Diesel fuel, under 24	$1.15 –$1.25	$1.15 –$1.25
(f) 30-34 grav., diesel (gas oil)	$1.25 –$1.35	$1.25 –$1.35
(g) Grade C fuel	$0.68 –$0.73	$0.68 –$0.73
In Ships' Bunkers, or deep tank lots:		
(f) Diesel fuel	$1.35 –$1.45	$1.35 –$1.45
(g) Grade C fuel	$0.85 $0.90	$0.85 –$0.90
Cased Goods: (Per case)		
U. S. M.	$1.45 $1.55	$1.45 –$1.55
400 e.p. blend, under 65 oct.	$1.50 $1.60	$1.50 –$1.60
375-400 e.p. blend, 65 oct. & above	$1.60 $1.70	$1.60 –$1.70
(d) 40-43 grav., w.w. kero	$1.40 $1.50	$1.40 –$1.50
Kero., p.w.	$1.30 $1.45	$1.35 –$1.45

Tanker Rates

(Approximate rates. Cents per bbl.)

Gulf-N. Atlantic: (not E. of N.Y.)	Last Paid	Owners Ask
Hvy. Crude & fuel, (10 to 19.9 gravity)	66	66 to 68
Light Crude, (30 Grav. or Lighter)	61	61 to 62
Gasoline	64	65
Kerosine	67	68
Light Fuel	70	71

Gulf Coast

(FOB ship at Gulf for domestic and export; min. 20,000 bbls.)

Prices quoted by individual GCRA refiners on their products meeting GCRA specifications follow

Mar. 18

GCRA Spec. Motor Fuels (CFR octane)	
65 octane unleaded	5.50 – 6.00
68 octane unleaded	5.75 – 6.25
70 octane unleaded	(b) 5.875–6.25
72-74 octane unleaded	.....
72-74 octane leaded	5.75 – 6.25

GCRA Spec. Kerosine & Gas Oils	
Kerosine	(a)4.625
43 or below diesel index gas oil	(a)4.00
43-47 diesel index gas oil	(b) 4.00 –4.125
48-52 diesel index gas oil	(b)4.25
53-57 diesel index gas oil	(b)4.375
58 & above	(b)4.50

Prices quoted by refiners for other products follow:

MOTOR GASOLINE

Mar. 18

	60-62 Gravity, 400 e.p.	61-63 Gravity, 390 e.p.	64-66 Gravity, 375 e.p.
60 oct. unleaded	5.00-5.50	(b)5.25-5.375	(b)5.375-5.50
65 oct. unleaded	5.25-6.00	(b)5.50-5.625	(b)5.625-5.75
68 oct. unleaded	5.50-6.25	(b)5.875-6.00	(b)6.00
70 oct. unleaded	(b)5.875-6.25	(a)6.125	(a)6.25
72-74 oct. leaded	5.25-6.25	(a)6.00	(a)6.00

KEROSINE, GAS & FUEL OILS

	Mar. 18	Mar. 11
41-43 grav. w.w. kero.	4.50 – 4.75	4.50 – 4.75
Gas Oil (Less than ½ of 1% sulfur)		
Below 43 diesel index	(a)4.00	(a)4.00
43-47 diesel index	(b) 4.00 – 4.125	(b) 4.00 – 4.125
48-52 diesel index	4.125 – 4.25	4.125 – 4.25
53-57 diesel index	(b)4.375	(b)4.375
58 & above	(b)4.50	(b)4.50
No. 2 fuel	(b) 4.125–4.25	(b) 4.125–4.25
(g) Diesel Oil	$1.70	$1.70
(g) Grade C bunker oil	$0.90 – $1.05	$0.90 – $1.05
Grade C bunker oil, cargoes	$0.90 – $1.05	$0.90 – $1.05

MID-CONTINENT LUBES

(At Gulf; in packages, FAS.; in bulk FOB terminals)

	Mar. 18 (i) Packages	Bulk
200 vis. D. 210 brt. stock	(a)35.50	(a)29.80
200 vis. E 210 brt. stock	(a)35.50	(a)29.80
150 vis. D 210 brt. stock 0-10 p.p.	(b) 31.50–33.00	(b) 25.80–27.60
10-25 p.p.	(a)30.50	(a)24.80
150 vis. E 210 brt. stock	(e)	(e)
100 vis. D 210 brt. stock 0-10 p.p.	(a)30.50	(a)24.80
10-25 p.p.	(a)29.50	(a)23.80
200 vis. No. 3 col. neutral:		
0-10 p.p.	(a)21.00	(a)15.30
10-25 p.p.	(a)20.50	(a)14.80
180 vis. No. 3 col. neutral:		
0-10 p.p.	(a)20.50	(a)14.80
10-25 p.p.	(a)20.00	(a)14.30

SOUTH TEXAS LUBES

(Vis. at 100°, c. t. 0, blk. exprt. shp., FOB terminals.)

Unfiltered Pale Oils: Vis.	Color	Mar. 18	Mar. 11
100	No. 3	6.00 – 6.50	
200	No. 3	7.50 – 8.50	
300	No. 3	8.00 – 9.00	
500	No. 3½	9.00 –10.50	
750	No. 4	9.50 –11.00	
1200	No. 4	10.00 –13.50	
2000	No. 4	10.25	

Red Oils: Vis.	Color	
100	No. 5-6	6.00 – 6.50
200	No. 5-6	7.50 – 8.50
300	No. 5-6	8.00 – 9.00
500	No. 5-6	9.00 –10.50
750	No. 5-6	9.50 –11.00
1200	No. 5-6	10.00 –13.50
2000	No. 5-6	10.25

(a) One refiner quoting. (b) Two refiners quoting. (c) One supplier quoting. (d) Two suppliers quoting. (e) No quotations reported. (f) Ships' bunkers. (g) Lighterage, additional at some points, not included. (h) For San Francisco cargo prices, add 5c per bbl. to cargo prices shown above. (i) Shipment in bags or in bulk. (j) Shipment in tight barrels. (l) New steel drums.

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes, where levied, are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NP N for Feb. 21, 1940. These prices in effect March 18, 1940 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. New Jersey

Esso (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gaso-line Taxes	Kero-sine T.W.
*Atlantic City, N. J	7.6	8.7	4	8.1
*Newark, N. J	7.6	8.7	4	8.1
Annapolis, Md	8.35	9.35	5	9.50
Baltimore, Md	7.75	8.75	5	8.5
Cumberland, Md	9.15	10.15	5	10
Washington, D. C	8.0	9	3	9.5
Danville, Va	8.95	11.45	6	11.5
Norfolk, Va	7.75	10.25	6	11
Petersburg, Va	8.05	10.55	6	11.7
Richmond, Va	8.05	10.55	6	11
Roanoke, Va	9.25	11.75	6	11.5
Charleston, W. Va	8.55	11.05	6	12.6
Parkersburg, W. Va	7.85	9.85	6	11.2
Wheeling, W. Va	8.85	10.75	6	11.8
Charlotte, N. C	9.9	11.4	7	11.8
Hickory, N. C	10.45	11.95	7	12.3
Mt. Airy, N. C	10.3	11.8	7	12.2
Raleigh, N. C	9.65	11.15	7	11.5
Salisbury, N. C	9.95	11.45	7	11.9
Charleston, S. C	7.75	10.25	7	9.25
Columbia, S. C	8.6	11.1	7	11.5
Spartanburg, S. C	9.3	11.8	7	12.2

	Mineral Spirits T.W.	V.M.&P. T.W.
Newark, N. J	11.5	15.5
Baltimore, Md	15.5	....
Washington, D. C	15	....

*Effective Sept. 14, 1939, minimum retail resale price of 11.9c posted thru New Jersey.

Discounts:

Esso gasoline—to undivided dealers, 0.5c off dealer t.w. price, thru territory, except New Jersey. While above posted prices continue at Atlantic City and Newark, dealers will pay net price of 8.6c per gal. for Esso; dealers having pumps marked only Esso, Esso Extra and Standard White gasoline will pay 8.1c per gal. for Esso.

Kerosine—1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore city contract not necessary) except no discount in state of New Jersey.

Naphthas—To buyers taking following quantities at one time: Newark, 2c per gal. on 200 gals. or more, less than 200 gals. 0.5c higher price; Baltimore, 2c off on 25 to 100 gals. and 3c on over 100 gals.; Washington, 2c off to contract buyers.

Socony-Vacuum Oil Co., Inc.

Socony Mobilgas (*Regular Grade*)

	Consumer Tank Car	"Split" Dealer T.W.	Gaso-line Taxes	†† Kero-sine T.W.
Metropolitan N. Y. City: Boroughs of Manhattan, Bronx and Brooklyn (Kings and Queens)	7.2	8.8	*5	8.50
Borough of Richmond (Staten Is.)	7.2	8.8	*5	8.50
Albany, N. Y	7.1	9.1	5	8.30
Binghamton, N. Y	8.47	9.5	5	9.30
Buffalo, N. Y	8.1	9.5	5	8
Jamestown, N. Y	7.7	9.5	5	7.9
Plattsburg, N. Y	7.6	10.1	5	8.90
Rochester, N. Y	8.3	10	5	8.6
Syracuse, N. Y	7.7	9.5	5	8.80
Bridgeport, Conn	7.3	8.3	4	8.0
Danbury, Conn	7.8	9.1	4	9
Hartford, Conn	7.4	9.3	4	7.5
New Haven, Conn	7.3	8.3	4	7.5
Bangor, Me	7.4	9.7	5	8.0
Portland, Me	7.1	9.1	5	8.50
Boston, Mass	7	9	4	8.50
Concord, N. H	7.9	10.2	5	9.10
Lancaster, N. H	8.7	11.2	5	9.90
Manchester, N. H	7.7	9.5	5	8.90
Providence, R. I	7	9	4	8.50
Burlington, Vt	7.6	10.1	5	8.70
Rutland, Vt	8	10.3	5	8.90

	Mineral Spirits T.W.	V.M.&P. T.W.
Buffalo, N. Y	11.5	12.5
†New York City	8.9	9.5
Rochester, N. Y	12.5	12.5
Syracuse, N. Y	12.5	15
Boston, Mass	11.5	11.5
Bridgeport, Conn	11.5	12
Hartford, Conn	11	11.5
Providence, R. I	11.5	12.5

	Fuel Oils—T. W. Nos. 2 & 3	No. 4
New York City	7.00	7.00
Albany, N. Y	7.20	6.70
Rochester, N. Y	7.50	7.50
Boston, Mass	7.20	7.20
Bangor, Me	7.60	7.60
Manchester, N. H	7.00	7.00
Burlington, Vt	7.90	7.90

Fuel Oils—T.W.—(Cont'd)

	Nos. 2 & 3	No. 4
Hartford, Conn	7.30	7.30
New Haven, Conn	7.20	7.20
Providence, R. I	7.20	7.20

*Plus 2% city sales tax computed at time of each sale.

†Prices apply to consumers only in quantities over 1000 gals. annually; for quantities under 1000 gals. annually, add 0.5c per gal.

††Same prices apply for No. 1 fuel.

Discounts: Gasoline—To undivided dealers, 0.5c less than "split" dealer t.w.

Atlantic Refining

Atlantic White Flash Gasoline (*Regular Grade*)

	Commercial T.C.	Dealer T.W.	Gaso-line Taxes	Kero-sine T.W.
Philadelphia, Pa	7	7.8	5	10.5
Pittsburgh	8	9.5	5	10.5
Allentown	8	9.5	5	10.5
Erie	8	9.5	5	10
Scranton	7.5	10	5	10.5
Altoona	8	10	5	10.5
Emporium	8	10	5	10.5
Indiana	8	10	5	10.5
Uniontown	8	10	5	10.5
Harrisburg	8	9.5	5	10.5
Williamsport	8.5	10	5	10.5
Dover, Del	....	8.5	5	10.5
Wilmington	....	8.5	5	10
Boston, Mass	....	8.5	4	8.5
Springfield, Mass	....	9	4	9.0
Worcester, Mass	....	9.1	4	8.0
Fall River, Mass	....	8.5	4	8.5
Hartford, Conn	....	9.3	4	8.5
New Haven, Conn	....	8.3	4	8.5
Providence, R. I	....	9	4	8.5
Atlantic City, N. J	....	8.6	4	8.1
Camden, N. J	....	8.6	4	8.1
Trenton, N. J	....	8.6	4	8.1
Annapolis, Md	....	9.35	5	10.5
Baltimore, Md	....	8.75	5	9.5
Hagerstown, Md	....	9.85	5	10
Richmond, Va	....	10.55	6	11
Wilmington, N. C	....	10.35	7	10.8
Brunswick, Ga	....	10	7	*11
Jacksonville, Fla	....	9	8	10

	Mineral Spirits T.W.†	V.M.&P. T.W.†
Philadelphia, Pa	12	14.5
Lancaster, Pa	13.5	16
Pittsburgh, Pa	14.5	14.5

	Fuel Oils—T.W. 1	2	3	4	5	6
Phila., Pa	8.5	7.00	7.00	7.00	4.25	3.50
Allentown, Pa	8.5	6.5	6.5	6.75	....	....
Wilmington, Del	8.00	7.00	7.00	7.00	....	....
Springfield, Mass	9.0	7.7	....	....	....	....
Worcester, Mass	8.0	7.0	....	7.0	....	....
Hartford, Conn	8.5	7.3	....	7.3	....	....

*Does not include 1c Georgia kerosine tax.

†Mineral Spirits prices also apply to Stoddard Solvent; V.M.&P. prices also apply to Light Cleaners Naphtha.

Discounts:

Gasoline—to undivided dealers, 0.5c off dealer t.w., except Georgia & Florida dealer t.w. and undivided dealer t.w. prices are same. At Scranton, Pa., 1c per gal. voluntary discount allowed to dealers only.

Kerosine—Thru Penna. & Delaware, 2c off t.w. price on t.w. deliveries of 25 gals. or more at one time.

Naphthas—Philadelphia, 200 gals. or more at one time, 2c off Lancaster, contract buyers taking 1000 gals. or more per year, one drum up, 2c off; non-contract buyers, 200 gals. or more at one time, 2c off. Pittsburgh, 500 gals. or more at one time, 2c off.

S. O. Ohio

***Sohio X-70 Gasoline (*Regular Grade*)**

	Consumer T.W.	Divided Dlr.	‡S.S.	Gaso-line Taxes	†Kero-sine T.W.
Ohio, Statewide	10.5	9.5	12.5	5	9
Akron	10.5	8.5	10.5	5	8.5
Cincinnati	10.5	9	11.5	5	9
Cleveland	10.5	8.5	11	5	9
Columbus	10.5	9	11.5	5	9
Dayton	10.5	9	11.5	5	9
Marietta	10.5	9	11.5	5	9
Portsmouth	10.5	9.5	12.5	5	9
Toledo	10.5	7.5	9.5	5	9
Youngstown	10.5	9	11.5	5	7.5

Esso Aviation Gasoline—Thru Ohio

	Consumer T.W.	Gasoline Taxes
74 octane	15.5	5
80 octane	16.5	5
87 octane	17.5	5

S. O. Ohio (Cont'd)

	S.R. Solvent	**V.M.&P. Naphtha
Thru Ohio—T.W.	12.5	13

††Fuel Oils—T.W.

	No. 1	No. 2	No. 3
Toledo	7.50	7.00	7.00
Rest of Ohio	7.50	7.50	7.00

*Renown (third-grade) prices are same as X-70 unless otherwise noted.

†Kerosine prices do not include 1c Ohio tax. Prices are to resellers & commercial consumers.

‡Prices at company-operated stations.

**V.M.&P. prices also apply on Cleaners naphtha, special Varnolene and Solio Solvent.

††Prices are for full compartment hose dumps; bucket dumps are 0.5c per gal. higher.

Discounts:

X-70 gasoline—to undivided dealers, 0.5c off dealer t.w.

Esso aviation—on contract to hangar operators and resellers, 2c off consumer t.w.

Naphthas—to contract consumers off t.w. prices: 300 to 999 gals., 0.5c; 1000 to 2499 gals., 0.75c; 2500 to 4999 gals., 1c; 5000 or more gals., 1.5c.

S. O. Kentucky

Crown Gasoline (*Regular*)
Standard or Kyso (*Third Grade*)

	†Net Dealer ††Standard Crown	or Kyso	Gaso-line Taxes	Kero-sine T.W.
Covington, Ky	8.5	7.5	6	9.5
Lexington, Ky	10.5	9.5	6	10
Louisville, Ky	9.5	7.5	6	9
Paducah, Ky	9.5	8	6	9
Jackson, Miss	9	8	7	*9.5
Vicksburg, Miss	9.5	8.5	7	*9
Birmingham, Ala	10.5	8	*8	9
Mobile, Ala	9.5	7.5	*9	8
Montgomery, Ala	10.5	9	*9	*10
Atlanta, Ga	11	8.5	7	*9
Augusta, Ga	10.5	9.5	7	*9
Macon, Ga	11	9	7	*10
Savannah, Ga	9.5	8	7	*8
Jacksonville, Fla	9	8	8	8
Miami, Fla	9	8	8	8
Pensacola, Fla	9.5	8	*9	8.5
Tampa, Fla	10	9	8	8

*Taxes: In tax column are included these city and county gasoline taxes: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Montgomery, Ala. have 1c kerosine tax, Mississippi 0.5c, not included in above prices.

†Consumer t.w. prices are same as net dealer prices except at Tampa. Tampa consumer t.w. prices are Crown 13c, Standard 11.5c.

††Standard, a leaded 3rd grade, is sold in Ky., Ala., Ga., and Fla.; Kyso, an unleaded 3rd grade, is sold in Miss.

Discounts:

Gasoline—Tampa: Temporary discount of 3c on Crown, 2.5c on Standard, off Consumer T.W. prices which see above.

S. O. Indiana

Red Crown (*Regular Grade*)
Stanolind (*Third Grade*)

	Red Crown Cons. T.W.	Dealer Prices Red Crown	Stano-lind	Gaso-line Taxes	Kero-sine T.W.
Chicago, Ill	11.1	9.1	6.9	4	10
Decatur, Ill	11.1	8.1	6	4	9.5
Joliet, Ill	11.1	9.6	6.7	4	10
Peoria, Ill	11.1	8.7	8.1	4	10
Quincy, Ill	10.9	9.4	8.5	4	9.8
Indianapolis, Ind	11.8	9.3	8.8	5	*10.2
Evansville, Ind	11.6	10.1	9.4	5	*10.5
South Bend, Ind	11.8	10.3	8.8	5	*14.2
Detroit, Mich	9.6	8.1	7.6	4	7.6
Grand Rapids, Mich	9.2	7.7	7.2	4	9
Saginaw, Mich	10.8	9.3	8.6	4	9.3
Green Bay, Wis	11.9	10.4	9.9	5	10.3
Milwaukee, Wis	11.3	9.8	9.3	5	10.2
La Crosse, Wis	11.5	10	9.5	5	10.4
Minneapolis-St. Paul	11.5	9.5	9	5	10.4
Duluth, Minn	11.9	10.4	9.9	5	10.8
Mankato, Minn	11.5	10	9.5	5	10.4
Des Moines, Ia	10.9	8.4	7.4	4	*9.8
Davenport, Ia	11.1	9.6	7.5	4	*10
Mason City, Ia	11.3	9.8	6.9	4	*10.2
St. Louis, Mo	10.7	9.2	7.5	*4	8
Kansas City, Mo	10.4	8.9	6.9	*4	8
St. Joseph, Mo	10.4	8.0	7.5	*4	7.9
Fargo, N. D	12.7	11.2	10.7	5	11.6
Huron, S. D	12	10.5	10	5	10.9
Wichita, Kans	9.3	7.1	5.5	4	7

(Continued on next page)

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes, where levied, are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NP N for Feb. 21, 1940. These prices in effect March 18, 1940 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. Indiana (Cont'd)

Stanavo Aviation 73 Octane

Chicago, Ill	14.9	
Detroit, Mich	16.5	4
Milwaukee, Wis	15.1	5
Minneapolis, Minn	15.3	5
St. Louis, Mo	14.5	3
Kansas City, Mo	14.2	*4
Fargo, N. D	16.5	5
Huron, S. D	15.8	5

	Oleum Spirits	V.M.&P. Naphtha	Stanisol
Chicago, Ill	16.7	17	16.4
Detroit, Mich	19.7	18.7	20.2
Kansas City, Mo	14.4	15.4	14.9
St. Louis, Mo	14.7	15.7	13.4
Milwaukee, Wis	19.3	20.3	19.8
Minneapolis, Minn	19.5	20.5	18.2

†Fuel Oils—T.W.	No. 1 Fuel	Stanolex Furnace
Chicago	**7	7
Indianapolis		*7.5
Detroit		6.6
Milwaukee	8.2	7.7
Minneapolis	7.5	7.5
St. Louis	7.0	6.75
Kansas City	6.8	6.8

*Taxes: In gasoline tax column are included these city taxes—Kansas City, St. Joseph, and St. Louis, 1c. Indiana kerosine and fuel oil prices are ex 4c state tax; Iowa kerosine prices are ex 3c state tax.

†Prices for small-lot deliveries range up to 2c higher than above prices.

**For 400 gals. & over; 150 to 399 gals., 7.5c; 1 to 149 gals., 8.5c.

S. O. Nebraska

Standard Red Crown Gasoline (*Regular Grade*)

	T.W.	Dealer	Gasoline Taxes	Kerosine T.W.
Omaha, Neb	10.5	7.5	6	9.8
McCook	10.5	7.9	6	9
Norfolk	10.5	8.4	6	9.5
North Platte	11.8	8.9	6	10
Scottsbluff	12.5	9.5	6	10

S. O. Louisiana

Esso (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Little Rock, Ark	7.25	9.75	7.5	10
Alexandria, La	6.75	9.25	8	*9.5
Baton Rouge, La	6.75	9.25	8	*9.5
New Orleans, La	6.75	9.25	8	*9
Lake Charles, La	6.75	9.25	8	*11.5
Shreveport, La	5.5	8	8	*8
Lafayette, La	7	9.5	8	*9
Bristol, Tenn	10.25	9.75	8	13
Chattanooga, Tenn	9.5	12	8	12
Knoxville, Tenn	10	12.5	8	13
Memphis, Tenn	8	10.5	8	11
Nashville, Tenn	9	9.5	8	11

*New Orleans kerosine price is ex 1c parish tax, and all Louisiana kerosine prices are ex 1c state tax.

Discounts:

Esso gasoline—to undivided dealers, 0.5c off dealer t.w.

Humble Oil & Refining Co.

Humble Motor Fuel (*Regular Grade*)	*T.W.	S.S.	Gasoline Taxes	Kerosine T.W.
Dallas, Tex	7	11	5	7
Ft. Worth, Tex	7	11	5	7
Houston, Tex	8.5	12.5	5	8
San Antonio, Tex	8	12	5	8

Thriftane

(Leaded, 67 Octane, Purple Gasoline)

Dallas	5.5	9	5
Ft. Worth	5.5	9	5
Houston	7	10.5	5
San Antonio	6	10	5

74 Octane Aviation Gasoline, Clear

	Tank Car
FOB Baytown, Tex	8.5

*To all classes of dealers & consumers.

The Texas Co.

	Gasoline—Dealer T.W. Fire-Chief (*Regular*)	Indian (*3rd Grade*)	Gasoline Taxes
Dallas, Tex	7	5	5
Ft. Worth, Tex	7	5	5
Wichita Falls, Tex	8	5	5
Amarillo, Tex	8	5	5
Tyler, Tex	8	5	5
El Paso, Tex	8	7	5
San Angelo, Tex	7.5	5	5
Waco, Tex	8	5	5
Austin, Tex	8.5	7	5
Houston, Tex	8.5	7	5
San Antonio, Tex	8	6	5
Port Arthur, Tex	8.5	6	5

Continental Oil

Conoco Bronz-z-z (*Regular Grade*)

	†T.W.	Dealer	Gasoline Taxes	Kerosine ‡T.W.
Denver, Col	8	..	5	10.5
Grand Junction, Col	12.5	..	5	12.5
Pueblo, Col	8	..	5	9
Casper, Wyo	11.5	..	5	11.5
Cheyenne, Wyo	10.5	..	5	11
Billings, Mont	12	..	6	12
Butte, Mont	13	..	6	13
Great Falls, Mont	12	..	6	12
Helena, Mont	12.5	..	6	12.5
Salt Lake City, Utah	10.5	10.5	5	11
Boise, Ida	*15.1	*15.1	6	16
Twin Falls, Ida	*15.1	*15.1	6	16.5
Albuquerque, N. M	7	..	*6.5	10
Roswell, N. M	9.5	9.5	*6.5	8
Santa Fe, N. M	10.5	10.5	*7	10
Ft. Smith, Ark	9.5	..	5	7.5
Little Rock, Ark	9.25	..	7.5	8
Texarkana, Ark	8	..	5	7
Muskogee, Okla	8	7	5	7
Oklahoma City, Okla	6	..	5	6.5
Tulsa, Okla	6	..	5	6

Demand Gasoline (*Third Grade*)

Denver, Col	6	..	5	....
Grand Junction, Col	11.5	..	5	....
Pueblo, Col	6	..	5	....
Casper, Wyo	10.5	..	5	....
Cheyenne, Wyo	9.5	..	5	....
Billings, Mont	11	..	6	....
Butte, Mont	11	..	6	....
Great Falls, Mont	11	..	6	....
Helena, Mont	11	..	6	....
Salt Lake City, Utah	9.5	9.5	5	....
Boise, Ida	*14.1	*14.1	6	....
Twin Falls, Ida	*14.1	*14.1	6	....
Albuquerque, N. M	6	..	*6.5	....
Roswell, N. M	8.5	8.5	*6.5	....
Santa Fe, N. M	9.5	9.5	*7	....
Ft. Smith, Ark	7	..	5	....
Little Rock, Ark	7.5	..	7.5	....
Texarkana, Ark	6	..	5	....
Muskogee, Okla	7	6	5	....
Oklahoma City, Okla	5.5	..	5	....
Tulsa, Okla	5	..	5	....

Conoco Special Gasoline (Aviation)

	T.W. & Dealer Price	Gasoline Taxes
Denver, Colo	15	5
Cheyenne, Wyo	15.5	5
Helena, Mont	22.5	6
Salt Lake City, Utah	18	5
Albuquerque, N. M	14	*6.5

*Taxes: In gasoline tax column are included these city taxes—Albuquerque and Roswell, 0.5c; Santa Fe, 1c. Idaho prices include 0.1c to cover 1-mill tax for toll bridges.

†To consumers; also to dealers at points where no dealer prices are shown.

‡To consumers and dealers.

S. O. California

Standard Gasoline (*Regular Grade*)

	T.W.	S.S.	Gasoline Taxes	Kerosine T.W.
San Francisco, Cal	13.5	14.5	4	11.5
Los Angeles, Cal	13	14	4	10
Fresno, Cal	14.5	15.5	4	12.5
Phoenix, Ariz	14	15	6	*12.5
Reno, Nev	15.5	16.5	5	13.5
Portland, Ore	14	15	6	13.5
Seattle, Wash	14	15	6	*13.5
Spokane, Wash	15.5	16.5	6	*16.5
Tacoma, Wash	14	15	6	*13.5
Flight Gasoline (*Third Grade*)				
San Francisco, Cal	12	13	4	....
Los Angeles, Cal	11.5	12.5	4	....
Fresno, Cal	13	14	4	....
Reno, Nev	14	15	5	....
Phoenix, Ariz	11	12	6	....
Portland, Ore	12.5	13.5	6	....
Seattle, Wash	12.5	13.5	6	....
Spokane, Wash	13	14	6	....
Tacoma, Wash	12.5	13.5	6	....

S. O. California (Cont'd)

Stanavo Aviation Gasoline

Phoenix, Ariz	17.5	6	....
Los Angeles, Cal	15	4	....
San Francisco, Cal	15.5	4	....
Reno, Nev	17.5	5	....
Portland, Ore	16	6	....
Seattle, Wash	16	6	....
Spokane, Wash	19	6	....

*Taxes: Arizona kerosine prices are ex 5c state tax. Washington kerosine prices are ex 0.25c tax on sales.

Discounts:

To 100% dealers—3c off t.w. on Standard and Stanavo Aviation; 2c off t.w. on Flight.

Canada

PRICES OF IMPERIAL OIL LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-Star Imperial Gasoline

	(*Regular Grade*) T.W.	Gasoline Taxes	Kerosine T.W.
Hamilton, Ont	15.5	8	16
Toronto, Ont	15.5	8	16
Brandon, Man	21	7	22
Winnipeg, Man	19.5	7	20.5
Regina, Sask	18.5	7	20.5
Saskatoon, Sask	21	7	23
Edmonton, Alta	18.9	7	20.9
Calgary, Alta	16	7	18
Vancouver, B. C	16	7	23
Montreal, Que	16	8	16.5
St. John, N. B	15	10	19
Halifax, N. S	15	10	19

Discounts: To undivided dealers, 1c off t.w. price, except Maritime Provinces where undivided dealers pay t.w. price. Divided dealers pay t.w. price thru territory.

Price Changes

Socony-Vacuum—Socony Mobilgas:

Metropolitan N. Y. City, Borough of Richmond, Albany, Binghamton, Plattsburg, Syracuse, Bridgeport, Danbury, Hartford, New Haven, Bangor, Portland, Boston, Concord, Lancaster, Manchester, Providence, Burlington and Rutland consumer t. c. cut 0.5c, March 14; split dealer t. w. prices cut March 14 as follows: Albany 0.1c; Plattsburg 0.5c; Bridgeport 0.5c; Danbury 0.5c; New Haven 0.5c; Bangor 0.3c; Portland 0.3c; Concord 0.5c; Lancaster 0.5c; Manchester 0.8c; Providence 0.3c; Burlington 0.3c and Rutland 0.2c.

Kerosine:

Hartford t. w. cut 0.9c, Feb. 29.

Atlantic Refining—Atlantic White Flash Gasoline:

Dealer t. w. prices cut March 14, as follows: Philadelphia, 0.7c; Boston, 0.5c; Worcester, 0.4c; New Haven, 0.5c; Providence, 0.3c.

S. O. Ohio—Esso Aviation Gasoline:

74 oct., 80 oct., and 87 oct. cut 0.5c on Jan. 27.

S. O. Ohio—Kerosine:

All t. w. prices changed from consumers prices to resellers and commercial consumers prices.

S. O. Kentucky—Crown Gasoline:

Atlanta net dealer up 1c, Feb. 27.
Macon net dealer up 1.5c, Feb. 28.

Standard or Kyso Gasoline:

Atlanta up 2c, Feb. 27.
Macon up 1c, Feb. 28; cut 0.5c, March 4.

S. O. Indiana—Red Crown and Stanolind Gasoline:

Grand Rapids dealer prices up 1.4c and 0.9c, respectively, March 13.

Kerosine:

South Bend t. w. up 4c, March 7.

The Texas Co.—Indian:

Amarillo dealer t. w. cut 1c, March 12. Correction: Houston dealer t. w. 7c price has been in effect since Aug. 2, 1939.

Mid-Western

(*Continued from page* 46)

said to be good. Inquiries for gasoline were "improving," it was said.

Low octane gasoline was being closely held by southern Illinois refiners, according to reports here. One tank car marketer said that only small lots were being offered for immediate delivery at around 4.75c, FOB plant. "Refiners are unable to take on orders for 5 cars or more," he added.

Refiners' Group 3 kerosine quotations ranged from 3.875 to 4.25c for 41-43 w.w., and 4 to 4.625c for 42-44. One marketer quoted 3.625, two 3.75, and two 3.875c for 41-43; two marketers quoted 3.75, and two 4c for 42-44, FOB Group 3.

Refiners' Group 3 gasoline quotations were reported unchanged and ranged from 3.75 to 4.125c for 62 octane and below, 4c for 63-66, 4.25 to 4.75 for 67-69, and 4.50 to 5c for 70-72 octane. One marketer quoted 3.25c, one 3.375c, one 3.50c, and one 3.75c for 62 oct. and below; one 3.625c, one 3.75c, and one 4c for 63-66; three marketers quoted 3.875c, and one 4.25c for 67-69; two marketers quoted 4c, one 4.125c, one 4.25c, and two 4.50c for 70-72 octane, FOB Group 3.

Marketers reported selling 7 cars of 70-72 octane leaded at 4.125c, FOB Group 3, during the week.

Group 3 Freight Rates

To Division Headquarters Points of Standard Oil Co. of Indiana

	Gasoline-Kerosine		Distillate-Gas Oil-Fuel Oil	
	Cents per Cwt.	Cents per gal. 6.6 lbs.	Cents per Cwt.	Cents per gal. 7.4 lbs.
Chicago, Ill.	40	2.640	32	2.368
Decatur, Ill.	39	2.574	31	2.294
Joliet, Ill.	40	2.640	32	2.368
Peoria, Ill.	39	2.574	31	2.294
Quincy, Ill.	36	2.376	29	2.146
Indianapolis, Ind.	48	3.168	39	2.886
Evansville, Ind.	46	3.036	37	2.738
South Bend, Ind.	49	3.234	**42	**3.108
Detroit, Mich.	64	4.224	51	3.774
Gd. Rapids, Mich.	61	4.026	50	3.700
Saginaw, Mich.	66	4.356	53	3.922
Green Bay, Wis.	51	3.366	41	3.034
Milwaukee, Wis.	43	2.838	34.5	2.553
LaCrosse, Wis.	46	3.036	37	2.738
Min'ap'lis-St. Paul	46	3.036	37	2.738
Duluth, Minn.	52	3.432	41.5	3.071
Mankato, Minn.	46	3.036	37	2.738
Des Moines, Ia.	36	2.376	29	2.146
Davenport, Ia.	39	2.574	31	2.294
Mason City, Ia.	42	2.772	33.5	2.479
St. Louis, Mo.	33	2.178	26.5	1.961
Kansas City, Mo.	28	1.848	22.5	1.665
St. Joseph, Mo.	28	1.848	22.5	1.665
Fargo, N. D.	63	4.158	50.5	3.737
Minot, N. D.	83	5.478	66.5	4.921
Huron, S. D.	53	3.498	42.5	3.145
Wichita				
From Ponca City	7.5	*0.495	7.5	†0.555
From Tulsa	12.5	*0.825	12.5	†0.925
From Cushing	11	*0.726	11	†0.814

*This rate also includes distillate rate at 6.6 lbs. per gal.

**This rate applies only to residual fuel and gas oil. Combination rate of 32c per cwt. at 7.4, Group 3 to Chicago, plus 9c per cwt. at 6.6, Chicago to South Bend, total of 2.962c per gal., applies to petroleum fuel oil distillate not suitable for illuminating purposes.

†This rate is exclusive of distillate which is based on 6.6 lbs. per gal. from Ponca City, Tulsa and Cushing, Okla., to Wichita. Includes only gas oil and fuel oil.

NOTE: There is no Group 3 rate to Wichita, Kans.

Coming Meetings

Independent Oil Men's Assn. of N. E., 17th Annual Convention, Copley Plaza, Boston, Mass., March 28.

American Petroleum Institute, Southwestern District, Division of Production, Houston, Tex., March 28, 29.

Society of Automotive Engineers, National Transportation & Maintenance Meeting, Mellon Institute Auditorium, Pittsburgh, Pa., March 28-29.

Western Petroleum Refiners Assn., Annual Meeting, Allis Hotel, Wichita, Kans., March 31, April 1, 2.

Oil Burner Institute, Buffalo, N. Y., April 2.

The Michigan Petroleum Assn., Sixth Annual Convention, Detroit-Leland Hotel, Detroit, Mich., April 3-4.

American Chemical Society, Cincinnati, Ohio, April 8-12.

Armour Institute of Technology, Annual Midwest Power Conference, Palmer House, Chicago, Ill., April 9-10.

Society of Exploration Geophysicists, Annual Meeting, Stevens Hotel, Chicago, Ill., April 9-11.

Society of Economic Paleontologists and Mineralogists, Annual Meeting, Stevens Hotel, Chicago, Ill., April 11.

Petroleum Fluid Metering Conference, University of Oklahoma, Norman, Okla., April 11-12.

American Assn. of Petroleum Geologists, Stevens Hotel, Chicago, April 10, 11, 12.

American Petroleum Institute, Eastern District, Division of Production, Columbus, O., April 11, 12.

American Society of Mechanical Engineers, Petroleum Division, University of Oklahoma, Norman, Okla., April 12-13.

National Petroleum Assn., 37th semi-annual meeting, Hotel Cleveland, Cleveland, O., April 18, 19.

Indiana Assn. of Inspectors of Weights & Measures, 27th Conference, Vendome Hotel, Evansville, Ind., April 22, 23 and 24.

American Institute of Mining & Metallurgical Engineers, Open Hearth Conference, Pittsburgh, Pa., April 24-26.

Pennsylvania State College, 9th Petroleum and Natural Gas Conference, State College, Pa., April 26-27.

Petroleum Industry Electrical Assn., Dallas, Tex., May 1 to 3.

American Society of Mechanical Engineers, Spring Meeting, Worcester, New York, Hotel Bancroft, May 1-3.

American Gas Assn., Natural Gas Section, Houston, Tex., May 6-10.

Society of Automotive Engineers, National Production Meeting, Hotel Bond, Hartford, Conn., May 7-8.

American Institute of Chemical Engineers 32nd Semi-Annual Meeting, Statler Hotel, Buffalo, N. Y., May 13, 14 and 15.

Natural Gasoline Assn. of America, 19th annual convention, Hotel Tulsa, Tulsa, May 15, 16, 17.

International Petroleum Exposition and Congress, Tulsa, May 18-25.

American Petroleum Institute, 10th Mid-Year Meeting, Blackstone & Texas Hotels, Fort Worth, Tex., May 27-31.

National Oil Scouts' & Landmen's Assn., 17th Annual Convention, Arlington Hotel, Hot Springs National Park, Ark., May 30-June 1.

Illinois-Indiana Petroleum Assn., Eighth Annual Petroleum Conference, Robinson, Ill., June 1.

Oil Trades Assn. of New York, Sports Day, Pelham Country Club, Pelham, N. Y., June 11.

Society of Automotive Engineers, Summer Meeting, The Greenbrier, White Sulphur Springs, W. Va., June 9-14.

Southwest Petroleum Credit Group, San Antonio, Tex., June 17-20.

American Society of Mechanical Engineers, Milwaukee, Wis., June 17-20.

American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J., June 24-28.

American Society of Mechanical Engineers, Spokane, Wash., Sept. 3-5.

American Chemical Society, Detroit, Mich., Sept. 9-13.

National Lubricating Grease Institute, Annual Convention, Stevens Hotel, Chicago, Ill., Sept. 30, Oct. 1.

National Safety Congress & Exposition, Hotel Stevens, Chicago, Ill., Oct. 7-11.

Automobile Manufacturers Assn., 1940 Auto-Show, New York, Oct. 12.

Retail Posted Gasoline Prices At Service Stations in 50 Cities

The following price information is obtained from reliable sources but is not guaranteed.

Prices reported in effect as of March 1, 1940

	Net Dealer Price	Indicated Dealer Margin	Total "Gas" Tax*	Apparent Prevlg. Posted Retail Price Incl. Tax
Portland, Me.	8.9	3.6	5.0	17.5
Manchester	9.8	3.7	5.0	18.5
Burlington, Vt.	9.9	3.1	5.0	18.0
Boston	8.5	3.0	4.0	15.5
Providence	8.8	3.0	4.0	15.8
Hartford	8.8	3.0	4.0	15.8
Buffalo	9.0	3.4	5.0	17.4
New York	8.7	3.8	5.0	17.5
Newark	8.1	3.8	4.0	15.9
Philadelphia	8.5	2.5	5.0	16.0
Dover, Del.	8.0	2.0	5.0	15.0
Baltimore	8.25	4.55	5.0	17.8
Washington	8.5	4.0	3.0	15.5
Charleston, W. Va.	10.55	4.05	6.0	20.60
Norfolk, Va.	9.75	4.55	6.0	20.30
Charlotte, N. C.	10.90	3.8	7.0	21.7
Charleston, S. C.	9.25	3.75	7.0	20.0
Atlanta	11.0	4.0	7.0	22.0
Jacksonville	9.0	3.0	8.0	20.0
Birmingham	10.5	4.0	8.0*	22.5
Vicksburg	9.5	5.0	7.0	21.5
Memphis	10.0	4.8	8.0	22.8
Lexington	10.5	3.5	6.0	20.0
Youngstown, O.	8.5	3.0	5.0	16.5
South Bend	10.3	4.2	5.0	19.5
Chicago	9.1	1.94	4.0	15.04
Detroit	8.1	3.2	4.0	15.3
Milwaukee	9.8	4.1	5.0	18.9
St. Paul-Minneapolis	9.5	4.0	5.0	18.5
Fargo, N. D.	11.2	3.5	5.0	19.7
Huron, S. D.	10.5	4.2	5.0	19.7
Omaha	6.9	3.0	6.0	15.9
Des Moines	8.4	3.5	4.0	15.9
St. Louis	9.2	3.5	4.0*	16.7
Wichita	7.1	2.8	4.0	13.9
Tulsa	6.0	4.0	5.0	15.0
Little Rock	9.25	4.25	7.5	21.0
New Orleans	8.75	4.0	8.0	20.75
Houston	8.5	4.0	5.0	17.5
Albuquerque	8.0	4.5	6.5**	19.0
Denver	9.0	4.0	5.0	18.0
Casper, Wyo.	11.5	5.0	5.0	21.5
Butte, Mont.	13.0	5.0	6.0	24.0
Boise, Idaho	15.0	4.0	6.1	25.1
Salt Lake City	10.5	4.0	5.0	19.5
Reno, Nev.	12.5	4.0	5.0	21.5
Phoenix, Ariz.	11.0	4.0	6.0	21.0
San Francisco	10.5	4.0	4.0	18.5
Portland	11.0	4.0	6.0	21.0
Spokane	12.5	4.0	6.0	22.5
Average 50 Cities	9.61	3.73	5.42	18.76

*Includes 1c city tax. **Includes 0.5c city tax.

CRUDE OIL MARKETS

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN FIELDS

Posted by Joseph Seep Purchasing Agency
(Effective Jan. 1, 1940, except Corning Nov. 4, 1939)

Bradford-Allegany (Penna. and N. Y.).....$2.75
Penna. Grade Oil in Southwest Penna. Pipe Lines.....$2.40
Penna. Grade Oil in Eureka Pipe Lines (West Virginia).....$2.34
Corning Oil in Buckeye Pipe Lines (Ohio)..$1.12

Posted by Other Companies

Tide Water Associated Oil Co.
Bradford-Allegany district (Penna. and N. Y.) (Effective Jan. 1, 1940).....$2.75
The Pennzoil Co.: (Effective Jan. 1, 1940) Penna. Grade Oil in National Transit Lines$2.68
*The Pennzoil Co. posts $2.68 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields, prices in other lower districts range down to $2.63 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co.
(Effective Oct. 9, 1939)

Midland, Midland County.....$1.02
Sherman.....$0.97
Clare-Freeman.....$0.97

Posted by Simrall Corp.
(Effective Oct. 9, 1939)

Crystal, Greendale, Porter, Vernon and Wise..$1.02
Beaverton, Buckeye, Bentley, Edenville.....$1.00
Freeman and Redding.....$0.97
Arenac.....$0.82
(Effective Nov. 1, 1939)
West Branch.....$0.85

Posted by Sohio Corp. (Michigan Division)
(Effective Oct. 9, 1939)

Allegan and Kent Counties.....$1.03
(Effective Nov. 9, 1939)
Van Buren County.....$1.03

Posted by Bay Pipe Line Corp.
(Effective Oct. 9, 1939)

Bentley and Buckeye.....$1.00
Saginaw and Wise..$1.02 Clare.....$0.76

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.
(Effective June 8, 1939)

Illinois and Western Indiana.....$0.95
Illinois Basin.....$1.05

Posted by Sohio Corp.

Illinois Basin:
(Effective Oct. 21, 1939)
Salem (Lake Centralia).....$1.05
(Effective June 8, 1939)
Balance of Illinois Basin.....$1.05
(Effective Oct. 10, 1939)
Griffin (Ind.) pool, sand wells.....$0.95
Griffin (Ind.) pool, McCloskey lime.....$0.85

Posted by Carter Oil Co.
(Effective June 10, 1939)

Louden, Fayette County, Ill.....$1.05

Posted by Ashland Oil & Transportation Co.
(Effective June 9, 1939)

Somerset Oil in Ashland Lines, Kentucky:
Big Sandy River...$1.02 Kentucky River..$1.10

Western Kentucky

Posted by Sohio Corp.
(Effective June 9, 1939)

Birk City Area.....$0.90
Corydon Area (Henderson).....$0.90

Posted by Owensboro-Ashland Co.

Owensboro Area.....$1.00

CANADIAN FIELDS

Posted by Imperial Oil Limited

Western Ontario
(Effective Nov. 6, 1939)
Petrolia.....$2.10 Oil Springs.....$2.17

Alberta Turner Valley
(Prices f.o.b. field tankage)
(Effective Jan. 5, 1938)

Crude Oil			
40-40.9°	$1.14	53-53.9	$1.40
41-41.9	1.16	54-54.9	1.42
42-42.9	1.18	55-55.9	1.44
43-43.9	1.20	56-56.9	1.46
44-44.9	1.22	57-57.9	1.48
45-45.9	1.24	58-58.9	1.50
46-46.9	1.26	59-59.9	1.52
47-47.9	1.28	60-60.9	1.54
48-48.9	1.30	61-61.9	1.56
49-49.9	1.32	62-62.9	1.58
50-50.9	1.34	63-63.9	1.60
51-51.9	1.36	64-64.9	1.62
52-52.9	1.38		

Crude Naphtha, 65 grav. & above.....$2.14

Absorption Gasoline	
90% Rec., 20 lb. Reid v.p.	$1.94
90% Rec., 17 lb. Reid v.p.	$2.08

MID-CONTINENT—Oklahoma-Kansas

*(For effective dates, see footnote)

	S. O. Indiana	Carter Mag-nolia Shell	Conti-nental Texas Co.	Sin-clair Prairie
Below 21°	$0.70	$0.60	....	....
21-21.9	.72	.63	....	....
22-22.9	.74	.66	....	....
23-23.9	.76	.69	....	....
24-24.9	.78	.72	....	....
25-25.9	.80	.75	....	$0.58
26-26.9	.82	.78	....	.63
27-27.9	.84	.81	....	.68
28-28.9	.86	.84	$0.86	.73
29-29.9	.88	.87	.88	.78
30-30.9	.90	.90	.90	.82
31-31.9	.92	.92	.92	.86
32-32.9	.94	.94	.94	.90
33-33.9	.96	.96	.96	.96
34-34.9	.98	.98	.98	.98
35-35.9	1.00	1.00	1.00	1.00
36-36.9	1.02	1.02	1.02	1.02
37-37.9	1.04	1.04	1.04	1.04
38-38.9	1.06	1.06	1.06	1.06
39-39.9	1.08	1.08	1.08	1.08
40 & above	1.10	1.10	1.10	1.10

*Effective in 1938 by Carter Oil, Oct. 13, posting in Okla. only: Continental Oil, Oct. 11, with lowest grade below 29; Magnolia, Oct. 12, posting in Okla. only; Shell, Oct. 22; S. O. Indiana, Oct. 17; The Texas Co., Oct. 12. Aug. 31, 1939, by Sinclair-Prairie.

North-North Central and Central Texas
*(For effective dates, see footnote)

	Stano-lind	Sinclair Texas Co. Conti-nental	Magnolia
Below 21°	$0.60	....	
21-21.9	.62	....	
22-22.9	.64	....	
23-23.9	.66	....	
24-24.9	.68	$0.79	
25-25.9	.70	for	
26-26.9	.72	oil	
27-27.9	.74	below	
28-28.9	.76	29°.	
29-29.9	.78	.81	
30-30.9	.80	.83	
31-31.9	.82	.85	
32-32.9	.84	.87	
33-33.9	.86	.89	
34-34.9	.88	.91	
35-35.9	.90	.93	
36-36.9	.92	.95	
37-37.9	.94	.97	
38-38.9	.96	.99	
39-39.9	.98	1.01	
40 & above	1.00	1.03	

*Effective Oct. 11, 1938 by Continental, in North Tex.; Oct. 12, 1938, by Texas Co. in North & North Central Texas. Texas Co.'s lowest grade is 28-28.9, at $0.79; by Magnolia, Dec. 3, 1938, in N. and N. Central Texas; Oct. 5, 1939 by Sinclair Prairie in Mexia and N. Cent. Texas.

Jefferson County, Texas—Beaumont

(Posted by Magnolia Petroleum Co., Effective Oct. 2, 1939, and by Stanolind Oil & Gas Co., for West Beaumont, Effective Oct. 2, 1939)

Below 20°	$0.86	30-30.9	$1.08
20-20.9	.88	31-31.9	1.10
21-21.9	.90	32-32.9	1.12
22-22.9	.92	33-33.9	1.14
23-23.9	.94	34-34.9	1.16
24-24.9	.96	35-35.9	1.18
25-25.9	.98	36-36.9	1.20
26-26.9	1.00	37-37.9	1.22
27-27.9	1.02	38-38.9	1.24
28-28.9	1.04	39-39.9	1.26
29-29.9	1.06	40 & above	1.28

TEXAS FIELDS

Posted by Humble Oil & Refining Co.

**West Central Texas*
(Effective Aug. 11, 1939)

24-24.9	$0.71	33-33.9	$0.89
25-25.9	.73	34-34.9	.91
26-26.9	.75	35-35.9	.93
27-27.9	.77	36-36.9	.95
28-28.9	.79	37-37.9	.97
29-29.9	.81	38-38.9	.99
30-30.9	.83	39-39.9	1.01
31-31.9	.85	40 & above	1.03
32-32.9	.87		

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young Counties.

Effective Aug. 29, 1939, Shell posted in Fisher county, Tex., prices 3c lower than Humble's West Central Texas prices; Shell's schedule begins with below 25, at $0.68 and ends with 40 & above, at $1.

Note: Effective Oct. 1, 1937, Humble prices are based on 100% tank tables at 60F.

**East Central Texas*
(Effective Aug. 11, 1939)

23-23.9	$0.78	32-32.9	$0.96
24-24.9	.80	33-33.9	.98
25-25.9	.82	34-34.9	1.00
26-26.9	.84	35-35.9	1.02
27-27.9	.86	36-36.9	1.04
28-28.9	.88	37-37.9	1.06
29-29.9	.90	38-38.9	1.08
30-30.9	.92	39-39.9	1.10
31-31.9	.94	40 and above	1.12

Posted by Pan American Pipe Line Co.
(Effective Oct. 2, 1939)
Cayuga, Anderson county.....$0.78
*Including Anderson, Cherokee, Limestone, Navarro counties.

PANHANDLE TEXAS

	Humble (Aug. 11, 1939)		Texas Co. (Oct. 2, 1939)	
	Gray County	Carson Hutchin-son	Sweet	Sour
28-28.9	$0.72	$0.67	....	....
29-29.9	.74	.69	....	....
30-30.9	.76	.71	....	....
31-31.9	.78	.73	....	....
32-32.9	.80	.75	....	....
33-33.9	.82	.77	....	....
34-34.9	.84	.79	$0.84	$0.79
35-35.9	.86	.81	.86	.81
36-36.9	.88	.83	.88	.83
37-37.9	.90	.85	.90	.85
38-38.9	.92	.87	.92	.87
39-39.9	.94	.89	.94	.89
40 & above	.96	.91	.96	.91

Effective Aug. 31, 1939, Sinclair Prairie met Humble in Panhandle Texas. Dec. 3, 1938, Magnolia posted same schedule as Humble.

*EAST TEXAS

By Humble, Shell, Sinclair-Prairie, Stanolind, Gulf, Magnolia, Texas Co., Tide Water-Associated $1.10
*Effective dates: Aug. 11, 1939, by Humble and Tide Water-Associated; Aug. 29, 1939, by Stanolind; Oct. 2, 1939 by Sinclair Prairie; Oct. 5, 1939 by Shell; Oct. 12, 1938, by Magnolia, Texas Co.; Oct. 13, 1938, by Gulf.
*Includes Cherokee, Gregg, Rusk, Smith and Upshur counties.

Posted by Shell Oil Co., Inc.
(Effective Oct. 5, 1939)
Polk County, Tex. (Livingston and Schwab-Wilcox areas).....$1.10

NORTHEAST TEXAS

(Posted by Humble, Oct. 2, 1939)
Talco.....$0.65

(Posted by Magnolia, Oct. 12, 1938)
Cass County and Panola County, Tex.:
Magnolia posts below 25° at $0.73, plus 2c differential for each degree, to top grade of 40 & above, at $1.05.

(Posted by The Texas Co., Oct. 12, 1938)
Cass County.....$1.05

WEST TEXAS and NEW MEXICO

(a) (For effective dates, see footnote)

	Humble	Stano-lind	Shell	Texas Co. Sinclair (c)
Below 20°	$0.53	....	$0.53	....
20-20.9	.55	....	.55	....
21-21.9	.57	....	.57	....
22-22.9	.59	$0.67	.59	....
23-23.9	.61	for	.61	....
24-24.9	.63	oil	.63	....
25-25.9	.65	Below	.65	$0.65
26-26.9	.67	26°.	.67	.67
27-27.9	.69	.69	.69	.69
28-28.9	.71	.71	.71	.71
29-29.9	.73	.73	.73	.73
30-30.9	.75	.75	.75	.75
31-31.9	.77	.77	.77	.77
32-32.9	.79	.79	.79	.79
33-33.9	.81	.81	.81	.81
34-34.9	.83	.83	.83	.83
35-35.9	.85	.85	.85	.85
36-36.9	.87	.87	.87	.87
37-37.9	.89	.89	for	for
38-38.9	.91	.91	oil	oil
39-39.9	.93	.93	36° &	36° &
40 & above	.95	.95	above.	above.

Posted by Magnolia Petroleum Co.
(Effective Oct. 12, 1938 in West Texas; Oct. 15, 1939 in Lea County, N. Mex.)

	West Texas	N. Mex.		West Texas	N. Mex.
Below 25	$0.63	$0.63	33-33.9	$0.81	$0.81
25-25.9	.65	.65	34-34.9	.83	.83
26-26.9	.67	.67	35-35.9	.85	.85
27-27.9	.69	.69	36-36.9	.87	.87
28-28.9	.71	.71	37-37.9	.89	for
29-29.9	.73	.73	38-38.9	.91	oil
30-30.9	.75	.75	39-39.9	.93	36 &
31-31.9	.77	.77	40 & over.	.95	above
32-32.9	.79	.79			

Note: Magnolia's West Texas postings are in Crane, Glasscock, Howard, Mitchell, Upton and Winkler counties.

Pecos County, West Texas
(Posted by Humble Aug. 11, 1939 and Shell, Aug. 29 '39)
Pecos.....$0.78
Yates Shallow Pool (Shell only).....65

Posted by Sinclair Prairie Oil Marketing Co.
(Effective Aug. 31, 1939)
Eddy county, N. Mex.....$0.77
(a) Effective Aug. 11, 1939 by Humble; Shell Oil, Aug. 29, 1939; by The Texas Co., Oct. 12, 1938; Stanolind, Aug. 29, 1939; Sinclair Prairie, Aug. 31, 1939.
(c) Texas Co. posts $0.65 for below 26; Sinclair Prairie, $0.63 for below 25.
Note: Humble's postings are in these counties: Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler and Yoakum, West Texas; and Lea county, N. Mex.; Shell, in Crane, Ector, Glasscock, Howard, Upton, Winkler, Yoakum, Lea; Stanolind in Hendrick and Henderson field, Winkler county; Texas Co. in Ward, Winkler and Lea.

Posted by Continental Oil Co.
(Effective Oct. 11, 1938)
Artesia, Jackson and Maljamar pools, New Mexico; gravity schedule beginning with below 29, at $0.61; 29-29.9, at $0.63; plus 2c differential for each gravity, up to 40 & above, at $0.85.

COLORADO

Posted by Continental Oil Co.
(Effective Oct. 11, 1938)

Ft. Collins and Wellington			
Below 29	$0.81	35-35.9	$0.95
29-29.9	.83	36-36.9	.97
30-30.9	.85	37-37.9	.99
31-31.9	.87	38-38.9	1.01
32-32.9	.89	39-39.9	1.03
33-33.9	.91	40 & above	1.05
34-34.9	.93		

Canon City and Florence, Col.....$0.90

SOUTH AND SOUTHWEST TEXAS

All Shown Below Posted by Humble Oil & Refining Co.
(Effective Aug. 11, 1939)
Carroll, Clark, Darst Creek, Hilbig, Salt Flat and Zoboroski crudes.....$0.96
Van crude.....$0.93
Conroe.....$1.27

(Effective Oct. 2, 1939)
Flour Bluff and Jim Wells County.....$1.23
(Effective Sept. 14, 1939)
Hardin, Liberty county.....$1.10
Oct. 12, '38, Magnolia posted $0.96 in Darst Creek; $0.87 in Luling; $0.99 in Lytton Springs; $1.14 for Cleveland, and $1.02 in Hardin, both in Liberty county, Tex.
Oct. 12, '38, The Texas Co. posted $0.96 in Darst Creek.

(Continued on next page)

CRUDE OIL MARKETS

(*Continued from preceding page*)

***Anahuac-Dickinson**
(Effective Oct. 2, 1939)

Below 20°	$0.81	30-30.9	$1.03
20-20.9	.83	31-31.9	1.05
21-21.9	.85	32-32.9	1.07
22-22.9	.87	33-33.9	1.09
23-23.9	.89	34-34.9	1.11
24-24.9	.91	35-35.9	1.13
25-25.9	.93	36-36.9	1.15
26-26.9	.95	37-37.9	1.17
27-27.9	.97	38-38.9	1.19
28-28.9	.99	39-39.9	1.21
29-29.9	1.01	40 & above	1.23

*Anahuac-Dickinson includes Cedar Point, Fairbanks, Giffock, Hull, Pierce Junction and Raccoon Bend (shallow sand) and Turtle Bay.

Raccoon Bend (Deep sand crude) Tomball and Satsuma
(Effective Aug. 11, 1939)

22-22.9	$0.95	32-32.9	$1.15
23-23.9	.97	33-33.9	1.17
24-24.9	.99	34-34.9	1.19
25-25.9	1.01	35-35.9	1.21
26-26.9	1.03	36-36.9	1.23
27-27.9	1.05	37-37.9	1.25
28-28.9	1.07	38-38.9	1.27
29-29.9	1.09	39-39.9	1.29
30-30.9	1.11	40 & above	1.31
31-31.9	1.13		

Dec. 3, 1938, Magnolia posted above price and gravity schedule in Tomball. Effective Aug. 29, 1939, Stanolind met Humble in Tomball, except that Stanolind's schedule begins with below 29 at $1.07.

LOUISIANA-ARKANSAS
Posted by Standard Oil Co. of Louisiana
(†) (For effective dates, see footnote)

Gravity	*N. La.-Ark. Sweet	Bunkie-Eola, La.	*South La. Sour	*Ark. Sour	Baton Rouge-University
Below 20°					$0.79
20-20.9	$0.73	$0.83	‡$0.74	$0.63	.82
21-21.9	for	for	.77	for	.85
22-22.9	oil	oil	.80	oil	.88
23-23.9	Below	Below	.83	Below	.91
24-24.9	25°.	25°.	.86	25°.	.94
25-25.9	.75	.85	.89	.65	.97
26-26.9	.77	.87	.92	.67	1.00
27-27.9	.79	.89	.94	.69	1.02
28-28.9	.81	.91	.96	.71	1.04
29-29.9	.83	.93	.98	.73	1.06
30-30.9	.85	.95	1.00	.75	1.08
31-31.9	.87	.97	1.02	.77	1.10
32-32.9	.89	.99	1.04	.79	1.12
33-33.9	.91	1.01	1.06	.81	1.14
34-34.9	.93	1.03	1.08	.83	1.16
35-35.9	.95	1.05	1.10	.85	1.18
36-36.9	.97	1.07	1.12	.87	1.20
37-37.9	.99	1.09	1.14	.89	1.22
38-38.9	1.01	1.11	1.16	.91	1.24
39-39.9	1.03	1.13	1.18	.93	1.26
40 & above	1.05	1.15	1.20	.95	1.28

(Effective Aug. 30, 1939)

Smackover, Ark.	$0.73
Cotton Valley Distillate	$1.20

*N. La.-Ark. Sweet includes Caddo, Cotton Valley, Cross Lake, De Soto, Haynesville, Homer, Rodessa, Sabine and Sligo, La. crudes, and Miller county, Ark. S. La. Sour includes Choctaw, Darrow, N. Crowley, Roanoke and St. Martinsville. S. Ark. Sour includes Buchner, Magnolia and Village pools.

†N. La.-Ark. Sweet crude and S. La. Sour effective Aug. 30, 1939, except Cross Lake, La., Sept. 7, Baton Rouge-Univ., Sept. 11, and Bunkie and Eola, Oct. 23, 1939; and Ark. Sour, Sept. 13, 1939.

‡For Below 21°.

Effective Sept. 8, 1939, Gulf Refg. Co. met S. O. La's. N. La.-Ark. Sweet prices in Bull Bayou, Caddo, Crichton, De Soto, Haynesville, Homer, and El Dorado.

Posted by Arkansas Fuel Oil Corp.
(Effective Jan. 28, 1937)

Urania, La.	$1.02

Posted by Continental Oil Co.
(Effective Oct. 11, 1938)

Tepetate and Ville Platte, La.	$1.03

(Effective Jan. 1, 1939)
Abbeville, La.

Below 36	$0.92	38-38.9	$0.98
36-36.9	.94	39-39.9	1.00
37-37.9	.96	40 & above	1.02

Posted by Caddo Crude Oil Purchasing Corp.
(Effective Aug. 14, 1939)

Allison area, Shreveport field	$0.95

Lisbon, N. La.
(Effective Sept. 14, 1939)

27-27.9	$0.66	32-32.9	$0.76
28-28.9	.68	33-33.9	.78
29-29.9	.70	34-34.9	.80
30-30.9	.72	35 & above	.82
31-31.9	.74		

Lisbon prices met by Gulf, Sept. 14.

Note: S. O. Louisiana prices in all La.-Ark. fields, effective Oct. 5, 1938, are on 100% tank table basis.

GULF COASTAL FIELDS
(a) (**For effective dates, see footnote**)

Gravity	Continental Humble Sinclair Stanolind	Refugio Crude (Humble, Continental)	Texas Co.	Shell
Below 20	$0.86	$0.91	$0.86	(b)$0.79
20-20.9	.88	.93	.88	.81
21-21.9	.90	.95	.90	.83
22-22.9	.92	.97	.92	.86
23-23.9	.94	.99	.94	.89
24-24.9	.96	1.01	.96	.92
25-25.9	.98	1.03	.98	.95
26-26.9	1.00	1.05	1.00	.98
27-27.9	1.02	1.07	1.02	1.00
28-28.9	1.04	1.09	1.04	1.02
29-29.9	1.06	1.11	1.06	1.04
30-30.9	1.08	1.13	1.08	1.06
31-31.9	1.10	1.15	1.10	1.08
32-32.9	1.12	1.17	1.12	1.10
33-33.9	1.14	1.19	1.14	1.12
34-34.9	1.16	1.21	1.16	1.14

(*Continued in next column*)

Gravity	Continental Humble Sinclair Stanolind	Refugio Crude (Humble, Continental)	Texas Co.	Shell
35-35.9	1.18	1.23	for	for
36-36.9	1.20	1.25	oil	oil
37-37.9	1.22	1.27	34° &	34° &
38-38.9	1.24	1.29	above.	above.
39-39.9	1.26	1.31		
40 & above	1.28	1.33		

(a) Effective Oct. 2, 1939 by Continental, Humble and Texas Co.; Oct. 3, 1939 by Sinclair and Stanolind; Aug. 29, 1939 by Shell. Stanolind's lowest grade is below 21, at $0.88. Refugio, effective Oct. 2, '39 by Humble.

(b) Shell posts these prices in Iowa district, Black Bayou and White Castle, La.; prices in Iowa district have 2 lower grades: below 18, at $0.75, 18-18.9, $0.77; and 19-19.9, is $0.79.

Note: Humble's Gulf Coast prices apply in these Texas fields: Amelia, Clear Lake, Goose Creek, Mirando which includes Duval, Jim Hogg, Webb and Zapata counties and Heyser and Placedo fields; Mykawa, Sugarland, Thompsons and Webster.

Humble's prices in Refugio include crudes purchased in Saxet, East White Point, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor fields.

Stanolind's prices apply in High Island and Spindletop; also in Clinton, Hastings and South Houston, where, effective Jan. 1, 1940, lowest grade is below 21° at $0.88; rest of schedule same as other Gulf Coast. Magnolia posts Mirando, effective Oct. 2, same prices as Humble. Texas Co.'s prices are in Texas and La., Gulf Coast; its prices on Refugio are same as Humble's up to 28 gravity; 28 & above, $1.09; on Duval-Mirando same as Humble's up to 28; 28 & above, $1.04; it posts Golden Meadow, La., 24-30 grav., $0.90, plus 2c differential, to 40 & above, $1.10.

Posted by Shell Oil Co., Inc.
(Effective Aug. 29, 1939)

Gibson field, Terreborne Parish, La.	$1.04

ROCKY MOUNTAIN FIELDS
Posted by Stanolind Oil & Gas Co.
(Effective Oct. 11, 1938)

Salt Creek, (except Tensleep crude), Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma-Kansas, ranging from $0.86 to $1.10, which see under Mid-Continent crude on previous page.

Tensleep, Salt Creek field	$0.646
Iles, heavy	0.92
Elk Basin, light	0.90
Grass Creek, light	0.90
Frannie light	0.55
Grass Creek, heavy	0.40
Hamilton Dome, Wyo.	0.35
Frannie heavy	0.42

Posted by Ohio Oil Co.
(Effective Oct. 11, 1938)

Elk Basin, Wyo.	$0.90	Rock Creek	1.00
Grass Creek, light	0.90	Lance Creek	0.77
Dry Creek, Mont.			0.92

(Effective May 1, 1938)

Grass Creek, heavy	$0.50

(Effective Nov. 16, 1937)

Sunburst, Mont.	$0.90

Posted by Continental Oil Co.
(Effective Oct. 11, 1938)

Cat Creek, Mont.	$1.10
Big Muddy, Wyo.	0.98
Lance Creek, Wyo.	0.77

CALIFORNIA, *Posted by Standard Oil of California*

All gravities above those quoted take highest price offered in the field. Prices effective Feb. 1, 1940

Gravity	Signal Hill (Long Beach) and others*	Seal Beach	Huntington Beach	Inglewood	Playa Del Rey	Olinda Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Greeley Canal	Coles Levee Richfield Western Mountain View and others**	Elk Hills	Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria Val. (Union Oil, Sept. '39)
14-14.9	$0.65	$0.64	$0.63	$0.64	$0.65	$0.61	....	$0.65	$0.61	$0.61	$0.62	$0.63	....	....	....	$0.60	$0.60	$0.60	$0.60	....	$0.42
15-15.9	.65	.64	.63	.64	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	.44
16-16.9	.65	.64	.63	.64	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	.45
17-17.9	.65	.64	.63	.68	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	.46
18-18.9	.65	.64	.63	.71	.65	.65	....	.68	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	....
19-19.9	.69	.64	.67	.75	.70	.69	....	.72	.61	.65	.62	.63	....	....	....	.60	.64	.64	.64	$0.60	....
20-20.9	.73	.64	.72	.79	.76	.74	....	.75	.65	.69	.62	.67	....	....	....	.60	.69	.69	.69	.60	....
21-21.9	.78	.64	.76	.82	.81	.78	....	.79	.69	.73	.62	.72	$0.63	....	....	.64	.74	.74	.74	.60	....
22-22.9	.82	.69	.81	.86	.86	.82	....	.82	.73	.77	.66	.76	.63	....	....	.68	.79	.79	.78	.70	.63	....
23-23.9	.86	.75	.85	.89	.92	.86	$0.71	.86	.78	.82	.71	.81	.67	....	....	.71	.84	.84	.82	.74	.67	....
24-24.9	.90	.80	.90	.93	.97	.90	.77	.89	.82	.86	.75	.85	.72	....	....	.75	.89	.89	.86	.78	.71	....
25-25.9	.95	.86	.94	.96	1.02	.95	.82	.93	.86	.90	.80	.89	.77	....	....	.79	.94	.94	.90	.82	.75	....
26-26.9	.99	.91	.99	1.00	1.08	.99	.88	.96	.90	.94	.84	.94	.82	....	....	.83	.99	.99	.95	....	....	....
27-27.9	1.03	.97	1.03	1.04	....	1.03	.94	1.00	.94	.98	.89	.98	.87	$0.83	$0.92	.87	1.04	1.04	.99	....	....	....
28-28.9	1.07	1.02	1.07	1.07	....	1.07	.99	1.03	.98	....	.93	1.02	.91	.86	.96	.91	1.09	1.09	1.03	....	....	....
29-29.9	1.10	1.07	1.11	1.10	....	1.10	1.04	1.06	1.02	....	.98	1.06	.96	.90	.99	.95	1.14	1.14	1.07	....	....	....
30-30.9	1.14	1.12	1.15	1.14	....	1.14	1.09	1.09	....	....	1.02	1.10	1.01	.94	1.02	.99	1.19	1.19	1.11	....	....	....
31-31.9	....	....	....	1.17	....	1.17	1.14	Elwood Terrace			1.07	1.14	1.05	.98	1.06	1.02	1.24	1.24	Kettleman Hills			
32-32.9	....	....	....	1.20	....	1.20	1.19	F. o. b. ship.			1.11	1.18	1.09	1.02	1.09	1.06	1.29	1.29	....	....	....	....
33-33.9	....	....	....	....	....	....	1.24	....	$1.21	....	1.15	1.22	1.14	1.06	1.13	1.10	1.34	1.34	....	$1.12	....	....
34-34.9	....	....	....	....	....	....	1.29	....	1.25	....	1.20	1.26	1.19	1.10	1.16	1.14	....	....	....	1.17	....	....
35-35.9	....	....	....	....	....	....	1.34	....	1.29	....	1.24	....	1.23	1.14	1.20	....	....	....	....	1.21	....	....
36-36.9	....	....	....	....	....	....	1.39	....	1.33	....	1.28	....	1.27	1.18	1.23	....	....	....	....	1.25	....	....
37-37.9	....	....	....	....	....	....	1.44	....	1.37	....	1.33	....	1.31	1.22	1.26	....	....	....	....	1.29	....	....
38-38.9	....	....	....	....	....	....	1.49	....	....	....	1.37	....	1.36	1.25	1.30	....	....	....	....	1.33	....	....
39-39.9	....	....	....	....	....	....	1.54	....	....	....	1.42	....	....	1.29	1.34	....	....	....	....	1.38	....	....
40-40.9	....	....	....	....	....	....	1.59	....	....	....	1.46	....	....	1.33	1.37	....	....	....	....	....	....	....
41-41.9	....	....	....	....	....	....	....	....	....	....	1.50	....	....	1.37	1.40	....	....	....	....	....	....	....
42-42.9	....	....	....	....	....	....	....	....	....	....	1.54	....	....	1.41	1.44	....	....	....	....	....	....	....
43-43.9	....	....	....	....	....	....	....	....	....	....	1.59	....	....	1.45	1.47	....	....	....	....	....	....	....
44-44.9	....	....	....	....	....	....	....	....	....	....	1.63	....	....	1.49	1.51	....	....	....	....	....	....	....
45-45.9	....	....	....	....	....	....	....	....	....	....	1.67	....	....	1.53	1.54	....	....	....	....	....	....	....
46-46.9	....	....	....	....	....	....	....	....	....	....	1.71	....	....	1.57	1.57	....	....	....	....	....	....	....
47-47.9	....	....	....	....	....	....	....	....	....	....	....	....	....	1.61	....	....	....	....	....	....	....	....
48-48.9	....	....	....	....	....	....	....	....	....	....	....	....	....	1.64	....	....	....	....	....	....	....	....

FOB Standard Pipeline

*El Segundo prices same as Signal Hill. Wilmington prices same as Signal Hill, except below 19 gravity prices are: 14-16.9, $0.60; 17-17.9, $0.62; 18-18.9, $0.64.
**Includes Newhall, McKittrick, Kern River, Round Mountain and Kern Front, schedule for which ends with 19-19.9. Mountain View schedule begins with 19-19.9.

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9000 Employees Exceed 10 Years Service

LOS ANGELES, Mar. 16.—Approximately 9000 employees of Standard Oil Co. of California and its subsidiaries, representing more than 60 per cent of the 14,000 employees, have service records of 10 to 40 years, according to a statement issued in connection with the awarding of new service pins to 840 employees. Under the plan adopted by the "Order of Service," a company organization established in 1916, at the end of 10 years service the employee is entitled to his first service pin and receives a new one with each five years of service thereafter.

Company records show that as of Dec. 31, 1939, a total of 8982 service pins have been awarded. Of that total, 1970 were to employees with 10 or more years of service; 3674 with 15 years; 2173, 20 years; 901, 25 years; 209, 30 years; 49, 35 years; five, 40 years; and one, 45 years.

Three members of the board of directors of the company were among those receiving new service pins; one for 40 years of employment, one for 35 years and one for 20 years. The average service of the 10 directors exceeds 31 years. For those holding managerial positions, numbering 325, the average record of continuous service is more than 23 years.

CLASSIFIED

Address all Blind Box Number ads to National Petroleum News, 530 Penton Building, Cleveland, Ohio, unless otherwise specified.

Positions Wanted

Experienced Chemist, M. S., with twenty years experience organic and petroleum, research and development, laboratory or plant; good record. Box No. 200.

REFINERY EXECUTIVE with chemical degree and business administration. Wide experience covering various crudes and processes. Can obtain efficient operation at low cost. Prefer connection with small organization offering future possibilities. Salary and location secondary. Box No. 201.

Interested in opportunity for future advancement 30 years old has 11 years broad experience in marketing. Best references. Box No. 202.

Chemical engineer, now employed capable of organizing and maintaining laboratory procedure. Experienced in product control and development of petroleum products, particularly industrial lubricants, also floor maintenance chemicals. Age 28, can locate anywhere. Box 203.

For Sale

Complete oil and gasoline jobbing plant. Oil blending equipment, grease kettles, good buildings. Must sell at once. A bargain, 225,000 gals. storage, no indebtedness. P. O. Box 284, Tulsa, Oklahoma.

Classified Rates

"For Sale," "Wanted to Buy," "Help Wanted," "Business Opportunities," "Miscellaneous" classifications, set in type this size without border—10 cents a word. Minimum charge, $3.00.

"Position Wanted"—5 cents a word. Minimum charge $1.00.

Advertisements set in special type or with border—$4.00 per column inch.

Copy must reach us not later than Saturday preceding date of issue.

All advertisements carried on this page are payable in advance.

For Sale

Transport G.M.C. late-1937 cab over engine and semi-trailer 7 compartments 2870 gallons safety valves Quaker valves skirted. 1940 plates. Westinghouse air brakes. Cost new about $9,000 will sacrifice for $2,500. Real beauty. Oil Co., 12950 Evergreen Rd., Detroit, Michigan.

Professional Services

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Petroleum and Gas Engineer
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ROYAL E. BURNHAM
Attorney-at-Law
Patent and Trade Mark Practice Exclusively
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An Exclusive Petroleum Testing Laboratory
Equipped For All Known Tests & Research in Petroleum Products
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Telephone—Spalding 3578

ANTI-KNOCK VALUES DETERMINATIONS
The Gray Industrial Laboratories
Chemists and Engineers
Specialists on Petroleum Products
961-976 Frelinghuysen Ave.
NEWARK, N. J.
Telephone Bigelow 3-4020

"STRICTLY PERSONAL"

A. I. Branthoover has been appointed assistant superintendent of the Portland, Ore. refinery of Union Oil Co.

The company also announced the following appointments of division distribution supervisors: **W. H. Welker** and **H. W. Wright,** northern; **J. H. Rogers** and **F. C. Kellogg,** central; **R. G. Ludlow** and **H. M. Schafer,** southern division.

* * *

Edward A. Rudiger, director of Standard Oil Co. of New Jersey and manager of refining operations in the southern division, will retire April 1 after nearly 42 years service with the company.

Dr. Merle R. Meacham, general superintendent of the company's Bayway refinery will succeed Mr. Rudiger in the management of the Baltimore and Charleston units. **Donald L. Ferguson,** assistant superintendent, will move into the top position at Bayway.

* * *

Frank C. Phillips, Bartlesville, board chairman of Phillips Petroleum Co., will be initiated into the Delta Sigma Pi, international commerce fraternity, at the University of Oklahoma, April 4. Mr. Phillips will be the principal speaker at a formal banquet following the initiation ceremony.

* * *

F. H. Hatch, Edgewood, Ia., of Jones County Oil Co., was'nt available when the picture for this week's frontispiece (See Page 8) of NATIONAL PETROLEUM NEWS was taken, otherwise he would have been included in the group picture as he is the newly-elected treasurer of the Iowa Independent Oil Jobbers Assn.

F. H. Hatch

"The Oil Can", organ of the Illinois Petroleum Marketers Ass'n. urges marketers to return five oil men who are candidates and nomination and re-election to the Illinois legislature:

Ed Marvel, Edinburg, Ill., Democrat, has long been affiliated with the oil industry. For a number of years he was a lubricating oil salesman and later was in business for himself as a compounder and marketer of lubricating oils.

J. L. (Jack) Wellinghoff, Belleville, Democrat, is affiliated with the New Era Oil Co., Belleville, being a son-in-law of **William Breitwieser,** member of the company.

Dr. Raymond C. Gillogly, Newman, Republican, is both a physician and independent marketer operating the Ocean-to-Ocean Oil Co. at Newman and the Allerton Oil Co. at Allerton, Ill.

Lew Wallace, Matoon, Republican, is an independent jobber operating as the Ben Mur Oil Co. Rep. Wallace took an active part during the last general session in handling legislative problems of the oil industry.

John R. Thompson, Bridgeport, Republican, is not a "full-fledged" oil man, *The Oil Can* reports, but resides in the heart of a production area and has the problems of the oil industry at heart. He is a physician and has served as attending physician for one of the refineries in Lawrence county.

* * *

E. P. Salisbury, chief statistician of the producing department of the New Jersey Standard has retired after 40 years service with the company. He joined the company as secretary to **Col. John J. Carter** at Sistersville, W. Va. Late in 1913, Mr. Salisbury went to Oklahoma where he became assistant treasurer of the Carter Oil Co. He was brought to New York in 1916, where he got into statistical work, publishing one of the earliest "look ahead" sheets in the oil industry, forecasting probable trend of crude production.

* * *

H. W. Wilson, Des Moines, vice-president of Cushman-Wilson Oil Co. was elected a member of the executive committee of the Iowa Petroleum Industries Committee. **Henry E. Wormhoudt,** Mason City, of Wormhoudt Oil Co. was elected to the general committee of the state industries committee.

* * *

H. B. Bernard, associated with Consolidated Oil Corp. subsidiaries since 1917, has left Sinclair Prairie Oil Co. and after a short vacation on the Gulf Coast will return to Tulsa as general consultant on oil industry problems and engineering. For the past 20 years, Mr. Bernard has been active in the executive departments of the Consolidated companies, having served as vice president of Sinclair Oil & Gas Co. from 1920 to 1930, as president of Sinclair Automobile Service Corp. and more recently as consultant on production matters in the executive department of Sinclair Prairie Oil Co.

* * *

James P. Culbertson, Allentown, Pa., president and general manager of Pennsylvania Independent Oil Co., is on an 8-week trip to Mexico. Mrs. Culbertson accompanies him. **William R. Morell,** secretary-treasurer, of the same company, recently journeyed to New York's annual flower show.

* * *

Mr. and Mrs. Harold J. Dunmire (Valvoline Oil Co., Butler, Pa.) have just returned from a two weeks vacation at Palm Beach, Fla.

* * *

Sam L. Gehr, of Ultra-Penn Refining Co., Chicora, Pa., is back on the job following a week's absence on account of a nasal operation.

* * *

Alexander Fraser, St. Louis, president of Shell Oil Co., Inc. is one of the featured speakers on the program of the Metropolitan Section, Society of Automotive Engineers, at Hotel New Yorker, March 21. With other leading industrialists, Mr. Fraser will discuss "Rebuilding Our Cities for Traffic Safety and Efficiency."

* * *

L. W. (Bill) Afflerbaugh has been appointed to succeed the late **J. W. Debolski** as assistant superintendent of the operating division of General Petroleum Corporation's southern California marketing department. **T. V. (Tommy) McLain** now occupies the position of chief dispatcher of the company's Vernon sales department, formerly held by **Mr. Afflerbaugh.**

* * *

Harry Kuhe, formerly assistant division manager at Tulsa, for the Ethyl Gasoline Corp., has been appointed manager of a new Pacific Coast division, with headquarters at Seattle, Wash. New division includes the states of Washington, Oregon, Idaho, Montana, Utah and Wyoming. **Fred Naylor,** formerly of the Chicago division, has been appointed assistant manager at Seattle.

* * *

Coming to Ohio to speak at the Ohio Petroleum Marketers Assn. convention in Columbus the other week, **Hoyt R. Ogram,** Chicago, of Kanotex Refining Co., was returning to his native state (his birthplace was Cleveland). He was born in the oil business and grew up in it. In Cleveland, his father was connected with the firm of Rockefeller, Andrews and Co. and later was with Scofield, Shurmer and Teagle (this latter firm included John Teagle, father of the present board chairman of the New Jersey Standard).